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A COMPARISON OF THE NEWER DIURETICS, TRICHLORMETHIAZIDE, BENDROFLUAZIDE AND CHLORTHALIDONE, WITH CHLOROTHIAZIDE.

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THE quest for the ideal non-mercurial oral diuretic has produced a succession of compounds of varying type and efficacy, the most recent and most effective being the benzothiadiazine series. Of this group, chlorothiazide was the first to be available, and it was found to have a potency comparable with that of the organic mercurials—two grammes of the former given by mouth being equivalent to 2 ml. of the latter given by intramuscular injection (Davies and Evans, 1958). However, chlorothiazide has the following disadvantages.

Firstly, it is poorly absorbed from the alimentary tract—an average of 87% of an oral dose being lost in the fæces (Young *et alii*, 1959). As diuretic response parallels drug concentration in the urine, a large dose has to be administered to achieve a satisfactory response. Secondly, it has a relatively short but intensive activity—the maximum activity is obtained within four hours, rapidly falling thereafter and ceasing by 10 hours. Gilder (1960) has suggested that such rapidity of action may result in rebound, associated with later refractoriness. Thirdly, it is responsible for the production of hyperuricæmia, and the precipitation of acute gout (Oren *et alii*, 1958), shown to be associated with a reduced urate clearance and a reduced daily urinary urate excretion (Monroe *et alii*, 1959; Healey *et alii*, 1959). Fourthly, it has a tendency to produce hypokalæmia, owing to increased urinary excretion of potassium. In part this is due to carbonic anhydrase inhibitory activity (Slater and Nabarro, 1958; Matheson and Morgan, 1958), but the parallel between bicarbonate and potassium excretion is not complete. Edmonds and Wilson (1960) showed that the extent of potassium loss following the administration of a benzothiadiazine derivative, hydroflumethiazide, was related to the activity of sodium-retaining steroids such as aldosterone. These were considered to stimulate proximal renal

tubular reabsorption of sodium and chloride as well as distal renal tubular activity involving a cation exchange mechanism whereby sodium was reabsorbed and potassium was excreted. If the exogenous supply, or the endogenous secretion, of these sodium-retaining steroids was high, the diuretic caused a large excretion of potassium which could be counteracted by the administration of an aldosterone antagonist. The most common effects produced by this hypokalæmia were the precipitation of digitalis intoxication in patients with congestive heart failure, and of acute hepatic insufficiency and coma in patients with cirrhosis.

Structural modifications have been introduced into the benzothiadiazine group as follows (Milne, 1960): (i) hydrogenation of the original unsaturated 3:4 bond—for example, hydrochlorothiazide and hydroflumethiazide; (ii) substitution of the trifluoromethyl group (CF_3) for the original chlorine in 6-position—for example, hydroflumethiazide and bendrofluazide; (iii) insertion of an aromatic radicle in the 3-position—for example, bendrofluazide and benzthiazide (Figure I).

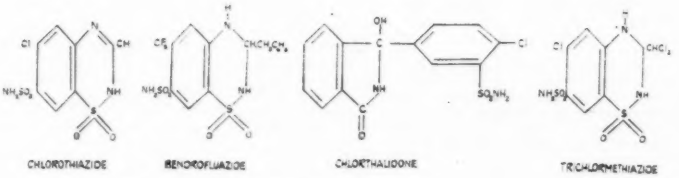

FIGURE I.

All three changes increase lipoid solubility, which facilitates transfer across cell membranes. This results in a more rapid and complete absorption from the alimentary tract, an increased entry into various body cells, and a diminished rate of excretion in the urine of the unaltered drug with greater tubular reabsorption from glomerular filtrate. Theoretically then, the more recent benzothiadiazines might be expected to represent an improvement on the original chlorothiazide. Young *et alii* (1959) have shown that hydrochlorothiazide and hydroflumethiazide are more rapidly and completely absorbed and less rapidly excreted, have a gentler and more prolonged action and are less inhibitory to carbonic anhydrase. A lower dosage is required (100 mg. of these hydrogenated compounds is equivalent to 1000 mg. of chlorothiazide), the action is more prolonged, and excretion of bicarbonate is less, but potassium loss is still considerable and supplements of potassium are necessary. Hence for practical purposes, the differences are quantitative rather than qualitative, there being no special virtue merely in the dose being smaller. A real advance would necessitate an alteration in the pattern of electrolyte excretion, but at present this seems comparable among all members of the benzothiadiazine group (Gilder, 1960).

In addition to the benzothiadiazines, a new group has been introduced, the phthalimidines, of which chlorthalidone is currently available. This agent is claimed to have a similar, but gentler and more prolonged, diuretic action. The carbonic anhydrase inhibitory effect is alleged to be very slight and activity is said to be still apparent 48 to 72 hours after ingestion, the total loss of sodium being greater, without the subsequent rebound phenomenon.

In this trial, then, three newer diuretics — trichlormethiazide and bendrofluazide of the benzothiadiazine group, and chlorthalidone of the phthalimidine group—have been compared with the established diuretic agent, chlorothiazide.

Methods.

It is notoriously difficult to evaluate diuretics in patients, especially as fluid and electrolyte status changes from day to day and it is virtually impossible to achieve a steady state (Edmonds and Wilson, 1959). The administration of the first diuretic may produce changes in the condition of the patient which can appreciably modify the effect of a subsequent diuretic. Other therapeutic measures, including bed rest, digitalis and dietary modifications, cannot be withheld, and these may also influence urinary output.

Subjects in such a trial need to be persons who could be expected to be in a comparable state of fluid and electrolyte balance at regular consecutive periods. Three persons were chosen as subjects for this trial, two healthy adult males and an adult male patient with heart failure due to ischæmic heart disease, whose condition was stabilized as far as possible on therapy including the regular administration of a diuretic such as mersalyl or chlorothiazide. It was decided to estimate the effect of the diuretics on the urine volume, on the excretion of sodium, potassium, chloride, bicarbonate and urate, and on the urine pH. Intitally then, the patterns of excretion of these substances on control days were determined on the test subjects. Urine was passed voluntarily at two-hourly intervals for 10 hours, and then a single collection was made for 14 hours, with an additional ten-hour collection to 34 hours in the comparison of the effect of chlorthalidone. The two-hour excretion rate in the 10-24 hour collection period was calculated from the total specimen collected during this period.

During both control and test periods, fluid was administered regularly and in constant quantities. Salt intake was unrestricted, so that the pattern of excretion would not be modified by the action of excessive endogenous sodium-retaining steroids. Diuretics were administered consecutively, the order varying in different subjects, but not to a set plan, as it was felt that the week interval which was allowed between the successive administration of diuretics would permit return of the body fluids and electrolytes to comparable states. Blood was collected at the beginning of the test period before administration of the drug, for the estimation of plasma sodium, potassium, bicarbonate and urate, and again 24 hours later. Change in weight in the 24 hours was measured.

In the determination of the optimum dose of the various diuretic agents, graduated doses were used. Trichlormethiazide was studied in doses of 4 mg. and 8 mg., bendrofluazide in doses of 5 mg., 7·5 mg. and 10 mg., and chlorthalidone in doses of 100 mg. and 200 mg. Chlorothiazide, which was used in this trial as the standard for comparison of effect, was given in doses of 1000 mg.

Standard chemical methods were used for estimations. Sodium and potassium were measured by flame photometry, chloride by mercuric nitrate titration (Schales and Schales, 1941), pH of urine with a glass electrode pH meter, urate by a modified carbonate phosphotungstate method (Henry, Sobel and Kim, 1957) and bicarbonate by a microdiffusion method (Conway, 1957).

Results.

The effects of these diuretic agents on urine volume, urine electrolytes and urine urate are shown in Tables I and II. The figures shown here are the simple arithmetic means of the results obtained from the three test subjects. With each diuretic, an attempt was made to determine the optimum dosage level by administering varied doses and comparing the responses.

TABLE I.

The Effects of Diuretic on Urinary Excretion over 24 Hours.

—	Volume (ml./day).	Sodium Excretion (mEq/day).	Chloride Excretion (mEq/day).	Potassium Excretion (mEq/day).	Bicarbonate Excretion (mEq/day).	Urate Excretion (mg./day).
Chlorothiazide:						
1000 mg.	2502	378	373	98	22·7	706
Trichlormethiazide:						
4 mg.	2652	398	409	85	9·8	822
8 mg.[1]	2857	355	393	89	4·2	720
Bendrofluazide:						
5 mg.	2165	426	445	87	8·7	845
10 mg.	2252	426	420	72	7·0	809
Chlorthalidone:						
100 mg.	1860	338	378	91	9·8	1015
200 mg.	2815	457	471	117	19·6	806
Mean of 15 control periods	1504	263	258	72	4·9	840
Standard error of mean	78	17	17	5	1·1	32

[1] Only two subjects tested.

With trichlormethiazide, an 8 mg. dose was not found to produce a significantly greater response than a 4 mg. dose. The response to 5 mg. of bendrofluazide was only slightly less than that following larger doses of 7·5 mg. and 10 mg. With chlorthalidone, the 200 mg. dose probably resulted in a significantly superior response to that induced by 100 mg., especially over the 34-hour period. For purposes of comparison, the above doses were evaluated in terms of 1000 mg. of chlorothiazide. In view of the reputed protracted activity of chlorthalidone, the response to this drug over 34 hours was compared with that to chlorothiazide over a similar period (Table II) in addition to a comparison over 24 hours—the maximum period of action studied with each of the other diuretics (Table I).

Detailed excretion patterns are shown in Figure II. The block 10-24 hours shows the two-hourly excretion rate during this time.

Urine Volume.

With chlorothiazide, urine flow was maximal in the two to four-hour collection period and then rapidly declined, so that after eight to ten hours it was no greater than that during the control period. With other agents, the total 24-hour output was comparable with chlorothiazide, but tended to be maintained more evenly throughout the first 10 hours. With chlorthalidone, the diuretic response continued after 24 hours and at 34 hours was greater in each subject than with chlorothiazide.

Sodium and Chloride Excretion.

Changes in chloride excretion closely paralleled changes in sodium excretion. All drugs increased urinary output of these ions. With chlorothiazide there was an early maximum in the two to four-hour collection period with rapid decline of subsequent excretion to control levels after eight to ten hours. With trichlormethiazide and bendrofluazide, the excretion rate tended to be more even over the first 10 hours. Chlorthalidone alone maintained a significantly raised excretion rate after 10 hours, and this persisted even after 24 hours. With each ion, the total excretion over the test period, either 24 hours or 34 hours, was consistently greater with the more recent diuretics than with chlorothiazide.

Potassium Excretion.

This is the crucial aspect of diuretic activity as any agent which would diminish the usually increased potassium excretion would constitute a significant practical advance in this field of therapeutics.

The rate of potassium excretion tended to parallel the response of the volume, sodium and chloride, in that with chlorothiazide and chlorthalidone it tended to show an early maximum and a rapid decline, and with trichlormethiazide and bendrofluazide it was more even throughout the day. (This varied excretion rate may also parallel the bicarbonate excretion.) Potassium excretion did seem to be less with the newer substituted benzothiadiazine derivatives than with chlorothiazide itself. However, total potassium excretion was elevated above control values in all cases, so that in none can the possibility of hypokalæmia be overlooked during their therapeutic use.

pH Changes and Bicarbonate Excretion.

In general, the urinary pH varied with the degree of bicarbonate excretion. Chlorothiazide resulted in a high early excretion of bicarbonate with an associated elevation of urinary pH. Chlorthalidone produced a comparable but less marked result including an alkaline urine. Trichlormethiazide and bendrofluazide induced responses very similar to that of the control period and at no time with these drugs was the urine alkaline in reaction.

Urate Excretion and Plasma Urate.

As the diet varied in protein and purine content, and observations were made over such a short period, it was difficult to decide the significance of alterations in urinary urate excretion. This fell most after chlorothiazide, and approached most closely to control values with bendrofluazide and trichlormethiazide. The plasma urate invariably rose in the 24 hours after the administration of any of these diuretics, most of all (0·8 mg. per 100 ml.) with chlorothiazide and chlorthalidone, and least of all (0·2 mg. per 100 ml.) with the 5 mg. dose of bendrofluazide. While sufficient to justify further investigation, this result alone is not necessarily significant.

TABLE II.

The Effects of Chlorothiazide and Chlorthalidone on Urinary Excretion over 34 Hours.

—	Volume (ml./day).	Sodium Excretion (mEq/day).	Chloride Excretion (mEq/day).	Potassium Excretion (mEq/day).	Urate Excretion (mg./day).
Chlorothiazide:					
1000 mg.	3055	453	467	144	1059
Chlorthalidone:					
100 mg.	2335	404	472	128	—
200 mg.	3440	572	592	164	1137
Mean of 11 control periods	2236	405	404	115	1250
Standard error of mean	127	38	37	10	60

Body Weight.

The body weight fell consistently between 0·5 kg. and 1 kg. with each test period.

Plasma Sodium and Potassium.

No significant alteration was detected in the case of either cation with any of the diuretics over the short test period.

Discussion.

This trial was limited in the type and number of subjects tested and in the duration of administration of

drugs and observation of diuretic responses. However, even with these recognized deficiencies, it may show trends which prove of value in practical application.

The place of chlorothiazide in modern diuretic and antihypertensive therapy is firmly established. In the diuretic field, this agent or one of its derivatives is regarded as the diuretic of choice in almost all cases of œdema both for initial therapy and, because of flexibility in dosage, for maintenance treatment (Leading Article, 1959). More recent drugs have been introduced in the hope that a qualitative difference in the pattern of renal response might result in the correction of certain disadvantages, especially the tendency towards hypokalæmia and to a lesser extent hyperuricæmia. The marked propensity for hypokalæmia to result from prolonged or intensive use of chlorothiazide has made the use of potassium supplements almost obligatory. It is accepted that the newer agents of the benzothiadiazine group are more readily absorbed from the alimentary tract so that a smaller dose is required to produce a comparable clinical effect. They are also more slowly excreted in the urine with a less intensive but more prolonged diuretic response. *In vitro* the inhibition of carbonic anhydrase is less obvious and in practice this is confirmed by diminished urinary excretion of bicarbonate. Thus these newer diuretics would probably have less tendency to cause problems by delaying the excretion of mecamylamine than would chlorothiazide. These refinements, individually or collectively, are not sufficient to establish any of the newer agents as greatly superior in practical therapeutics to the original benzothiadiazine, chlorothiazide.

In this trial each drug, in the dosages tested, has caused a significant increase in urinary volume and sodium and chloride excretion over the periods of 24 or 34 hours after ingestion. Although bendrofluazide produced a greater sodium and chloride excretion, and chlorthalidone had a prolonged period of action, the newer diuretics were not greatly superior to chlorothiazide in this primary measure of diuretic potency. The results in our test subjects showed a good diuretic response to a 5 mg. dose of bendrofluazide, which was not augmented by increasing the dose to 7·5 or 10 mg. Kennedy *et alii* (1960) found

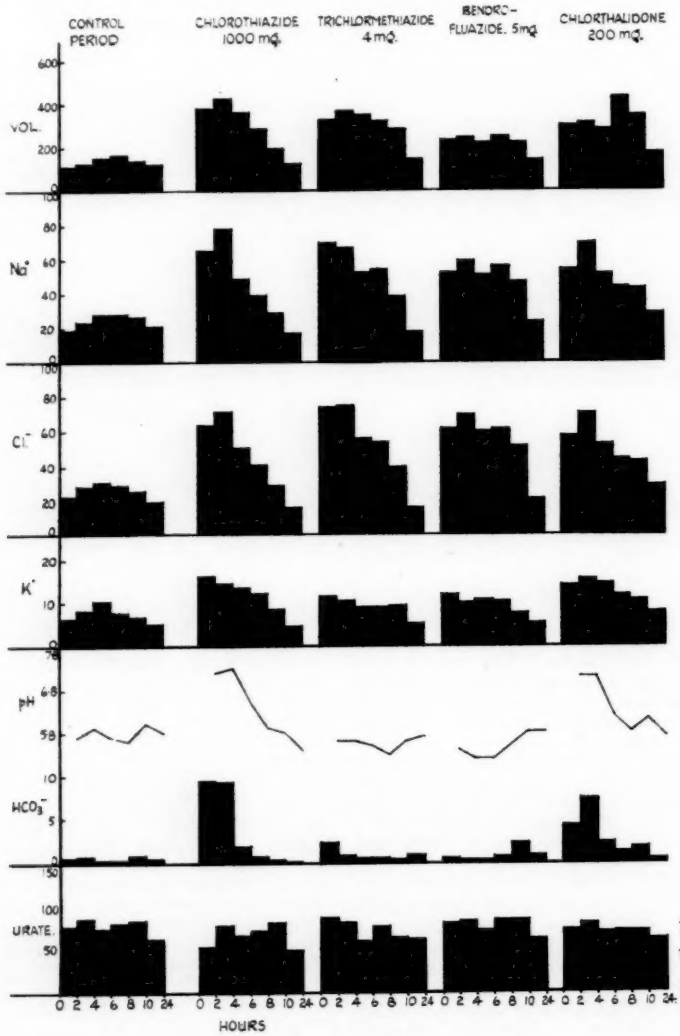

FIGURE II.

that the optimum dosage was 7·5 mg., but that some patients would respond well to 5 mg., while a few would require 10 mg. It appears that dosage should be adjusted to the requirements of the individual patient.

With potassium excretion, it appears that all agents tested did produce some increased loss of this valuable cation, and that this cannot be accounted for simply in terms of carbonic anhydrase inhibition. In this trial there was a lack of correlation between potassium excretion and bicarbonate excretion, especially evident in the control period and with trichlormethiazide and bendrofluazide. However, with chlorothiazide and chlorthalidone, although a significant increase in total bicarbonate excretion was not accompanied by a parallel increase in total potassium excretion, there was a coincidence in time of peak excretions of these substances. Unfortunately, then, virtual elimination of carbonic anhydrase inhibitory activity has not prevented the increased potassium excretion, as initially it was expected to achieve. In practice, excessive potassium excretion appears to depend more on the presence of secondary hyperaldosteronism than on the nature of the diuretic compound (Edmonds and Wilson, 1960). An important conclusion from this may be that no further refinement of diuretics of this essentially chloruretic group can be expected to correct this undesirable tendency to potassium depletion in the treatment of œdematous patients. Aldosterone antagonists such as the spirolactones may supply the solution to this problem when used in combination with an efficient oral diuretic of the benzothiadiazine or phthalimidine group.

Havard and Fenton (1959) found the pattern of electrolyte excretion quite different in patients with cardiac œdema of recent onset from that in patients with chronic cardiac œdema of months' or years' duration treated with restricted dietary sodium intake and previous diuretic therapy. In the latter group, sodium excretion tended to be less and potassium excretion tended to be greater both during control measurements and during measurements after chlorothiazide and hydrochlorothiazide administration. This difference was not apparent in the case of chronic heart failure included here; in fact the urinary excretion of potassium in this patient was consistently lower than that of the normals.

The fall in urinary excretion of urate and the rise in the plasma urate level following the administration of chlorothiazide, apparently due to a reduction in the urate clearance, still tend to occur with the newer benzothiadiazine diuretics. The suggestion that this is less with bendrofluazide would justify further investigation. For the moment hyperuricæmia and the precipitation of acute gouty arthritis remain a hazard with the newer drugs, as they are with chlorothiazide.

Chlorthalidone is claimed to have a prolonged action. A comparison of response to this drug with that to chlorothiazide over a period of 34 hours has shown a consistent augmentation of urine volume and sodium and chloride excretion. A practical advantage of this may be in the less frequent administration of the newer drug. As chlorothiazide is often given only once or twice a week as maintenance treatment, unless it can be shown that a more gradual action produces fewer side effects, it is difficult to see that reduced frequency of administration alone is a significant advantage.

With an increasing array of diuretic agents available, none of which has established clearly its superiority over its competitors, the choice in hospital or private practice may well depend on economic considerations. This makes the establishment of an optimum dose, on the basis of testing of dose response, an important subject for clinical investigation.

Summary.

Three more recent oral non-mercurial diuretics have been subjected to a limited trial in three subjects, two healthy adult males, and one adult male with ischæmic heart disease in a relatively stable state. Each has been compared with chlorothiazide, the responses being measured in terms of urine volume, sodium, chloride, potassium, bicarbonate and urate excretion.

Trichlormethiazide in a dose of 4 mg. produced a response comparable with 1000 mg. of chlorothiazide. Bendrofluazide, in a dose of 5 mg., produced a smaller water excretion but a greater sodium and chloride excretion than 1000 mg. of chlorothiazide. These two drugs had a more even action than had chlorothiazide, which lasted for a period of 10 hours, and produced less bicarbonate excretion and probably less potassium excretion. However, this diminution in potassium excretion would not appear to be sufficient to allow potassium supplements to be abandoned. Chlorthalidone was found to have a considerably more prolonged action than chlorothiazide, 200 mg. of the former producing a response greater than 1000 mg. of the latter. Both of these drugs, though different chemically, produced comparable losses of bicarbonate and potassium and retention of urate. Bendrofluazide, in a 5 mg. dose, seemed in this limited trial to produce the least elevation of the plasma urate. The newer diuretics then, while being effective diuretics in low dosage, have not removed the hazard of the precipitation of an acute attack of gout, or enabled the elimination of the need for potassium supplements in prolonged regular diuretic therapy.

Acknowledgements.

We wish to thank the following drug houses for generous supplies of tablets, and grants to defray some of the expenses of this investigation: Schering Corporation, United States of America and Essex Laboratories Pty. Ltd., for the trichlormethiazide ("Fluitran"), Boots Pure Drug Co. for the bendrofluazide ("Aprinox") and Geigy Pharmaceuticals for the chlorthalidone ("Hygroton").

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INVESTIGATION OF MENTAL DEFICIENCY.[1]

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Introduction.

THE wheel of progress in medicine is turning with gathering speed towards medico-social disabilities, and prominent among these are the numerous developmental defects which affect the function of the brain from early life. Whilst the emphasis of research may, from time to time, rest more with such disciplines as social psychology or education, ultimate understanding must depend on an appreciation of the nature and extent of the brain defect and its effect upon the behaviour and social adaptability of the brain-defective person.

Present trends in mental deficiency research may conveniently be considered from the biological, psychological (including educational) and social aspects.

Biological Aspects.

Chromosomal Abnormalities.

The recent discovery of the extra autosome in mongolism arising from the non-disjunction of chromosome 21 by Lejeune *et alii* (1959) and Jacobs *et alii* (1959) has opened up a fascinating field, not only for the study of mongolism, but also for other congenital anomalies. We are, of course, only at the beginning of this scientific adventure and already many more questions are being posed than are being answered. What is, in fact, the relationship between the autosome and the development of mongolism? While this separated chromosomal segment may determine the obvious features of mongolism, may not other genes be involved in producing the variable clinical features associated with the disorder? Already, a Klinefelter syndrome which involves the X-chromosome has been associated with mongolism (Ford *et alii*, 1959). Mongolism has also been described with the normal complement of chromosomes (Polani *et alii*, 1960), although the non-disjunction has apparently still occurred with the separated fragment attached to an intermediate-sized chromosome 15. My own feeling is that we will come to recognize a more general disturbance of genes than was first thought probable in mongolism and other congenital anomalies. This may explain the presence of multiple anomalies which could well result from some physical assault on an ovum in the process of cell division, with the aged ovum more vulnerable to such an assault. Our own epidemiological studies suggest that the assault could come from an infective source (Collmann and Stoller, 1960*a*).

The matter of the vulnerability of the aged ovum needs careful investigation. A correlation in the human between maternal aging and an increase in congenital anomalies has been frequently reported (Böok *et alii*, 1958). The suggestion that this may be due to constant assaults by cosmic radiation does not fit in with our findings that mongolism shows urban-rural differences in incidence and explosive patterns of occurrence. One could more easily postulate repeated infective attacks with a final assault producing the anomaly. Such a process would only account for transmissible conditions if a mutant process were thereby produced.

Much is needed in the way of population studies which will accurately determine the birth incidence of many congenital anomalies. Present evidence, for example, indicates a recessive inheritance for phenylketonuria, but even this largely accepted view still rests on incomplete case-finding. Numerous genetic hypotheses have, from time to time, been constructed for mongolism (Penrose, 1954), yet the matter is still very much *sub judice*. The bitangentiality of the maternal age distribution could represent an hereditary transmission for younger mothers of mongols, and a different ætiology for older mothers (Haldane, 1951; Penrose, 1960; Collmann and Stoller, 1960*a*). Support for the possibility has recently come from the observation that the younger mothers have a higher androgyny score (Cowie and Coppen, 1960), and the demonstrated transmissibility of mongolism in two families in which the separated autosomal segment from chromosome 21 appears to have become attached to chromosome 15 (Carter *et alii*, 1960; Penrose *et alii*, 1960).

If public health workers, general medical practitioners and the public at large will be ready to accept the recording of congenital anomalies and their presence in other family members, significant advances will be made in the recognition of hereditary mental deficiency and the part it plays in the total picture. Once such cases are more clearly delineated, research efforts will be able to be more specifically focused, and preventive possibilities will open up. Meanwhile, it is necessary carefully and painstakingly to collect as much information as one can about the occurrence of mental deficiency and attempt to piece together the mosaics of knowledge. Hallgren and Sjögren (1959), in a genetico-statistical study of a large rural population in Sweden, demonstrated that undifferentiated low-grade mental deficiency showed a significantly high rate among sibs and more so for males than females. Not only sex differences but differences in prevalence in different countries may well provide us with important ætiological clues.

Biochemical Anomalies.

Biochemical anomalies are becoming more manifest as the acute diseases of childhood are being better controlled. Whilst inborn errors of metabolism involve many surgical and medical aspects of medicine, they have lately become more linked with mental deficiency. Progressive muscular dystrophy, for instance, is now shown to be associated to a high degree with moderate mental defect (Allen and Rodgin, 1960).

Over 70 inborn metabolic errors have now been described (Hsia, 1959), and recessive inheritance is common in these. Since Følling's description of phenylketonuria in 1934, more recent additions to the disorders of amino-acid metabolism include argino-succinic aciduria (Dent, 1959), maple syrup urine disease (Menkes, Hurst and Craig, 1954) and cystathioninuria (Harris, Penrose and Thomas, 1959). Cerebral dysfunction may also be associated with more generalized metabolic disturbances such as occur with Hartnup disease (Baron *et alii*, 1956), galactosæmia (Komrower, 1957), Wilson's disease, oculo-cerebro-renal syndrome (Lowe *et alii*, 1952), idiopathic infantile hypoglycæmia (McQuarrie, 1954), and others. As yet, little is known of the reason for the abnormal deposits in lipoidoses such as amaurotic idiocy and related disorders such as gargoylism. We should mention a final group in which mental retardation is associated with water and electrolyte disturbances such as nephrogenic diabetes insipidus (Kirman *et alii*, 1956) and hypocalcæmia (Lightwood and Stapleton, 1953).

In Victoria we have recently noted a case of galactosæmia in the child of a father with Huntington's chorea, as well as the occurrence of the latter in two children below the age of ten years. Is Huntington's chorea itself a delayed effect of some inborn enzyme deficiency?

Research is being undertaken on the intracellular biochemistry of animal brains at progressive stages of development, and the pathways of glucose metabolism and lipid synthesis in the brain are being investigated. Yet, as Richter (1959) has pointed out, in cerebral protein metabolism alone, 20,000 enzymes might well be involved. This highlights the complexity of the entire subject of inborn metabolic errors.

Further investigation of the latter should lead to more understanding of intermediary metabolism in the normal cell. More needs to be known of the effect of the abnormal

[1] Read at the Annual Meeting of the Australasian Association of Psychiatrists in Adelaide on October 20, 1960.

metabolites on cerebral tissue. Monkeys have been fed with high doses of phenylalanine, and this has produced retarded cerebral development and, in some cases, convulsions (Waisman *et alii*, 1960). However, we still have to explain the normal carriers of the phenylketonuric anomaly. Present indications are that the inborn metabolic errors, although numerous, are reflected in only a small proportion of mental defectives. Well-based incidence studies are urgently needed and these could throw much light on inheritance in general.

Infection.

The fœtus may be affected by various non-viral infective agents, and tuberculosis, syphilis, brucellosis, malaria and toxoplasmosis have all been incriminated. A recent survey of admissions of idiots and imbeciles to the Fountain Hospital (Berg, 1960) has shown that post-natal meningitis accounted for 2·5% of such admissions. Asian influenza, although its effect is controversial, has been cited as causing congenital defects in a recent well-controlled study (Coffey and Jessop, 1959). Rubella in the first three months of pregnancy has varyingly been estimated to produce mental deficiency in the offspring in from 20% to 70% of cases (Jervis, 1959). However, D. Pitt (1960) has recently evaluated the results in 65 Australian mothers who contracted rubella in the first three months of their pregnancy, and has shown that only 1 of the 65 produced a mentally defective offspring, which does not show a significant statistical difference from the normal population (1·5% as compared with 1·0%). Contrary to usual expectation, the earlier in the pregnancy the rubella occurred, the more likely, and the more widespread, were the effects. The only other viruses which have been implicated in pre-natal brain damage are mumps, cytomegalic inclusion disease and equine encephalitis. There seems to be a significant field opening for experimental pathology, and I would suggest that experimental pathology be focused on the effects of viruses on the ova of aging animals.

A study has been proceeding on the incidence of mongolism in Victoria, with a view to determining a possible infective epidemiology, and the initial findings (Figure I) suggest this is so, on the basis of: (i) variable annual incidence; (ii) the higher incidence in urban as compared with rural areas; (iii) the consistent lag in rural incidence as compared with urban; (iv) the clustering of cases in no fewer than 40% of mongoloid births with P less than 0·01 (Collmann and Stoller, 1960*a*).

This has been supported by more recent work on the incidence of hydrocephalus, microcephaly and spina bifida in Victoria, which is also showing an annual variation in incidence (Collmann and Stoller, 1960*b*). The possibility that the peaks represent viral epidemiology is currently being examined. In Northamptonshire, England, Pleydell (1957) has also located epidemic areas for congenital anomalies, including mongolism, and the suggestion has been made that these differences are related to the incidence of streptococcal infections. Whilst the methodology of the Northamptonshire survey may be open to objection, the picture of clustering seems quite clear, and with it the association of specific congenital anomalies with specific areas. However, epidemiological studies, as was the case in the Victorian survey, must aim at a total recording of all of a specific group of anomalous births, both in time and place. Similar studies to this should be carried out in other areas, but only where urban-rural differences can clearly be established, where a period of collection for 15 to 20 years can be attained and where good demographic data exist. This probably rules out comparative data from underdeveloped areas.

Brain Damage and Epilepsy.

Epilepsy occurs more frequently with lower grades of mental defect, and is associated especially with inborn metabolic errors and brain damage. Pond (1960) reported 25% of patients in a mental deficiency colony as being mentally defective, whilst only 5% of an unselected group of epileptic patients could be classified as such. Epilepsy is rare with mongols. The differential distribution of various types of epilepsy needs to be evaluated more specifically, especially temporal lobe epilepsies, and such clearly-defined problems as infantile hypsarrhythmia (in which the fits slowly subside and leave the child defective) and the deteriorating type of grand mal epilepsy. We still need to determine whether grand mal attacks produce anoxia and secondary degeneration of brain tissue, including the frequently affected amygdaloid nucleus.

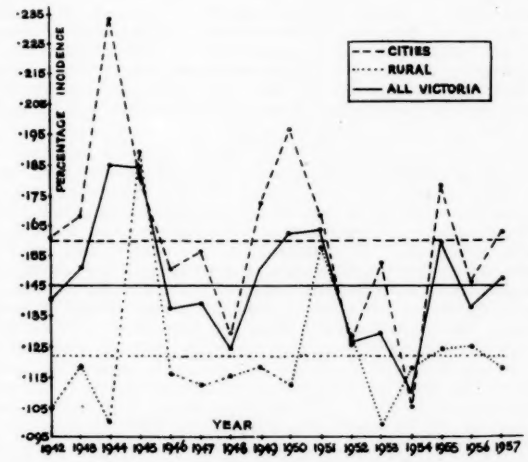

FIGURE I.

Annual incidence of mongoloid births adjusted for annual variations in the quinquennial age distributions of all parturient mothers in the general population.

Illingworth (1960) has pointed out that the diagnosis of mental deficiency can, and should, usually be made by the age of six months on clinical grounds alone—certainly by a year. This is contrary to the view of many psychologists, who hold that tests in the first two to three years have no predictive value. However, they use mainly sensorimotor tests and not assessments of such behaviour as alertness, concentration, vocalization, etc.; they do not follow up the children by successive tests and so do not estimate the rate of development; they assign gross motor development an importance equal to that of other fields, such as muscle tone, which may be just as significant an indication of development. According to Illingworth, manipulative development and the age at which chewing begins are useful predictive signs, whilst delayed pre-verbal vocalization and speech are most valuable in the diagnosis of mental retardation.

All in all, there does seem to be a great need for further longitudinal studies in child development and careful assessment of correlation between intellectual development and physical and behavioural characteristics. Whilst it does not seem possible to determine grades of intelligence within the normal range, it may well be possible to determine early whether a child is going to be extremely dull or extremely bright.

Tests of eyelid-conditioning (Franks and Franks, 1960) and the electroencephalogram (Lairy and Netchine, 1960) have been shown to have some correlation with brain damage. We may eventually be able to evolve a battery of such physical tests which will give us a clearer picture of the nature and extent of brain damage.

Finally, a new brain model needs to be constructed in terms of varying grades of brain damage and their psychoiogical equivalents. It is through the painstaking study of brains, with different areas deficient or damaged, that a picture of the relationship of levels of cerebral

integration to behavioural potential can be determined. It is on this basis, finally, that the learning process and its cultural modifications must be assessed.

Emotional Factors.

Stott (1960), on the basis of some unknown mechanism, postulates that emotional factors are important in the causation of congenital anomalies. In comparing the pregnancies of mothers of 1000 mongoloid children with mothers of 500 non-mongol defectives, 300 sibs of defective children and a control group of 450 normal children in normal families, he has found a heavy preponderance of emotional shocks in the second and third months of pregnancy. However, information is retrospective, and mothers of defective children may well tend to colour highly events in their pregnancies. Little comment is needed on the case recently described by Turner (1960) since the description of one case tells us nothing. A prospective study with a large series of cases and controls is needed.

Miscellaneous.

Although vitamin and other nutritional deficiencies may produce congenital anomalies in animals (Warkany, 1959), numerous studies in the United States of America have failed to demonstrate that deficiencies and resultant anomalies occur in mothers there. The effect of the administration of hormones during pregnancy needs to be assessed; androgenic hormones especially have recently been shown to produce masculinization of the female fœtus. More definitive studies are needed for the estimation of the effects of prematurity, anoxia, irradiation and jaundice. The recent attempts to render Rh antibodies harmless offer a promising lead in the fight against Rh incompatibility. The effects of drugs on mental defectives need to be assessed as carefully as with other groups; in a pilot study in Victoria the claim that cerebral stimulants improve the attention span and so the functional capacity of defectives has not been substantiated (Benn, 1960).

Psychological and Educational Aspects.

Learning.

Considerable advances are being made in this area through the work of such psychologists as O'Connor and Tizard (1956), Clarke and Clarke (1958) and Gunzburg (1960) in the United Kingdom, and Professor S. Kirk (1954) in the United States of America. J. Lyle (1960) from Victoria, working with Tizard recently in the United Kingdom, has also made an important contribution.

In considering learning possibilities for the mentally deficient, it is necessary primarily to understand the difficulties facing the brain-damaged child with its diminished number of cerebral synapses and disturbed communications. In addition to the resultant diminished perceptual capacity, one must also take note of the often associated sensory defects, the poor integrative capacity of the central nervous system, and the possibility that an associated biochemical or other general bodily disease may be also affecting synaptic function. The problem that needs to be faced is how to acquire learning with a defective mechanism. Attempts are being made to evolve psychological models which may be equated with neuroanatomical and neurophysiological models. S. Kirk (1958) has evolved a philosophy of education of the mentally deficient based on Osgood's (1954) model of the communication process. Using the Illinois Tests of Language Ability, he taps discrete aspects of the communication process in children, charts their assets and deficits in relation to these, and then uses remedial methods to determine the educability of these deficits. Another psychological model (Gellner, 1960) involves four different systems of integration in terms of combinations of four different behaviour patterns: verbal patterns, in terms of (i) speech defects and (ii) defects of language; and performance patterns, in terms of (i) visuomotor disorders and (ii) visuoconceptual derangement. Careful examination of learning patterns in the mental defective on the basis of these four systems is said to lead to a successful new teaching approach in a number of such patients.

On an empirical basis, it has been found that learning can be imparted to the low-grade defective to a greater extent than hitherto thought likely. It is now recognized that mentally retarded persons exhibit considerable variations in behaviour which do not correlate with a single I.Q. score, and the latter is only one indication of potential capacity for development. Clarke (1959) has shown quite clearly, in laboratory and workshop studies, that although imbeciles learn simple tasks more slowly than normals, the end states approximate eventually; also, that constant practice is associated with retention of the learned skill and extension to other similar tasks. Also, evaluation of three age-groups in carefully matched samples shows that those with earlier training develop greater capacity for workshop tasks. Institutionalized imbeciles benefit by doing real industrial work under sheltered conditions. In Victoria, we are at present engaged in estimating the physical, mental and social development of a group of adolescent boys placed in a workshop situation. Lyle (1960) has recently shown that there is a significant difference in verbal ability in matched day-school, as compared with institutional, children; that institutional imbecile children transferred to a residential nursery for 18 months show improvement in all verbal tests as compared with a control group; and that amongst institutional children, those who have suffered gross neglect or severe maternal deprivation verbalize the worst. He has shown, moreover, that, relative to the I.Q. measurement, there is a much greater deficiency in imbeciles with verbal as compared with non-verbal capacities. In other words, the imbecile will train much higher in social tasks than the I.Q. indicates. As a corollary of this, we badly need measuring sticks for non-intellectual capacities, and it is on this area that focus needs to be directed.

O'Connor (1960) has demonstrated that learning is facilitated in the mentally retarded by the use of techniques involving cross-modality such as colour and shape, as compared with like-modality, in which shapes alone are employed. At the Fountain Hospital a study by Brandon and Slomson (1960) on children in the four to eight years age range (one to two and a half years mental age range) show that one matched group, allowed continuous organized free play, as compared with the other group taught by traditional class methods, showed more purposeful activity and verbalized more. This has been our own observation in a kindergarten setting, and we now aim to handle the imbecile in terms of his chronological rather than his mental age. Many studies are now coming forward which are showing clearly that early stimulation will lead to a greater potential for development—as has been our experience with the nursery ward at Kew Cottages, where, with adequate "mothering" in the first year of life, not only has morbidity and mortality of imbeciles fallen off sharply, but the children approximate much more closely in development to the normal.

With regard to the adult defective and learning capacity, Gunzburg (1960) has shown how the adult defective has developed a number of disturbances of behaviour as a result of his inferior intellectual development. With a curriculum which he has devised, emphasizing social factors, an educational first-aid programme can be given in a few months by nurses, and results are most promising.

Psychogenic Deficiency.

One needs to remain constantly critical of concepts of global deficiency arising from psychological deprivation. One can more readily accept partial deficiencies, such as is evidenced in children with reading disabilities or by slow learners. Information about psychogenic deficiency has come from clinical and therapeutic experience, study of the effects of deprivation in early life and studies of environmental deprivation in animals. The rôle of organic factors and inheritance needs to be better understood.

In Victoria an attempt is being made to distinguish those children diagnosed as schizophrenics in whom there

is an acute, explosive onset, from those with a more gradual, insidious onset (Macmillan, 1960). Although schizophrenic children have now been followed up for some 20 to 25 years, the classification of such children and their fate merit considerable clarification. Lauretta Bender (1960) stresses the need to distinguish the schizophrenic child with associated organic brain disorder from the defective and brain-damaged child, as the treatment and prognosis may well be different. A poor prognosis is posed for those patients with a family history of schizophrenia, in whom there is often a marginal microcephaly and, although there are no organic features, there is a dysplastic type of development. In schizophrenia, the degree of organic brain damage and the nature of other schizophrenia in the family are important, but one still often requires a long period of observation to determine the significance of non-specific disorders of development.

Social Aspects.

Community and Family.

Inherent in any consideration of the concept of mental deficiency is how a particular community values the diminution in an individual's intelligence and performance. In my review of mental health in Thailand (Stoller, 1959), it soon became apparent that mental deficiency could well be twice as frequent there as in Australia. Yet it has only been the fairly recent introduction of compulsory education and, with rapid urbanization, the breakup of the consanguineous family, which have brought mental deficiency forward as a community problem. Parental attitudes of guilt and shame, reflecting community valuations, will often result in problems being hidden and figures of incidence may, therefore, accordingly be incorrect. Certainly, as has been our experience in Victoria, the provision of services to cater for the needs of the mentally handicapped has resulted in a much greater appearance of cases which would otherwise be hidden in the family closet. If the problems of mental deficiency are to be tackled in a particular community, it is necessary to utilize anthropological and sociological techniques to evaluate attitudes and social structure, and any figures obtained must be set against this background.

For instance, a study in Salford, in the United Kingdom (Susser, 1960), which determined social prestige ratings for various schools, showed that the rates of referral of the educationally subnormal was dependent on the cultural characteristics of the families associated with the school; the higher the cultural and social status of the family, the less likely was the child to be classified as educationally subnormal. Another study (Stein, 1960) classified families in terms of social and cultural status and estimated that in the higher "aspirant" families, the organic factors in the defective children would loom large, whilst in the lower "demotic" families, deprivation factors would be more likely to operate. Organic factors may or may not be present for the latter, but, on the whole, the prospects for improvement were relatively greater for this group.

Epidemiology.

A number of studies have now been done which reflect different incidences at different ages in one particular community. For instance, a study in Onondaga County, New York State, shows an incidence of 4·5 per thousand for the nought to five years age group, 39·4 per thousand for the five to nine years group, 77·6 per thousand for the 10 to 14 years group, and 44·9 per thousand for the 15 to 19 years group (Downing, 1955). The low incidence for the youngest age group obviously reflects the fact that the community does not stress failure at this age; then, as school pressures mount, there is a rising incidence to a maximum in the 10 to 14 years group; after 14 years, a number are able to be successfully absorbed into simple jobs in the community, and so they disappear from statistical records. The work of Collmann (1959) in this regard is pertinent. He has shown how well higher-grade educationally subnormal mental defectives (I.Q. 70 to 85) are absorbed into the community in the United Kingdom after leaving school. This disappearance into employment can be accentuated if the aforementioned findings of psychology and education are employed, if facilities are provided for community-oriented training, if adequate vocational guidance is forthcoming, and if society seriously sets out to earmark jobs for the mentally defective. All this requires a constant programme of social evaluation, as to how certain groups can best be handled—at home, in normal schools, in day centres, in institutions, in residential hostels, in sheltered workshops and in general industry. It seems common sense to make the mental defective, as far as practicable, a contributor to community productivity.

In any evaluation of mental deficiency in a community, it will be necessary to consider also those with multiple handicaps. Despite valiant efforts to sort out the pure "spastics" of normal intelligence, it must be recognized that a large majority are also defective. Also, sometimes associated with mental deficiency exist the deaf-mutes and the blind. These all pose special problems of management.

Mention has already been made of the collection of cases which will lead to clues to ætiology. The criteria for the definition of cases need to be carefully laid down and goals should not initially be set too high. In the case of our study in mongolism, we were only concerned with time and place of birth, and so were not distracted by studies of maternal health during pregnancy, thyroid function, nutritional state, psychological stresses, infections, family histories, and so on. All the other factors need to be studied at one time or another, but we must be prepared painstakingly to build up our mosaic of knowledge on a thorough and factual basis, rather than through broader, and more superficial, investigations.

Final Remarks.

The challenge of mental deficiency is one which the medical profession as a whole is accepting. Whilst, traditionally, psychiatry has been especially involved with the moderately and severely mentally handicapped, pædiatricians and neurologists are now making major contributions to this field, and these must be integrated also with the contributions of the epidemiologist, the biochemist, the geneticist, the psychologist, the educationalist and the sociologist. The practice of mental deficiency involves adults as well as children and psychopathology as well as emotional maturity; it is concerned not only with the psychological reactions of parents, but with the full range of intrafamilial relationships; and, lastly, its interests extend beyond the individual defective to embrace his entire relationship to society.

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PARALYTIC ILEUS DUE TO GANGLION-BLOCKING AGENTS.

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PARALYTIC ILEUS has been recognized as one of the most dangerous complications which may result from the use of ganglion-blocking agents (Wangensteen, 1955). Although the methonium compounds, pentolinium and mecamylamine have been the most frequent cause, most ganglion-blocking drugs can precipitate paralytic ileus.

The diagnosis of this form of intestinal obstruction is not always easy and occasional mistakes are made in one of two ways. Firstly, a mechanical obstruction (for example, one due to adhesions) may be thought to be due to treatment for hypertension with these drugs, and a fatal delay in operation result. Secondly, paralytic ileus due to ganglion-blocking drugs may be misdiagnosed as obstruction due to adhesions and treated by an unnecessary laparotomy.

The purpose of this paper is to record the course of the illness in 12 patients suffering from paralytic ileus induced by ganglion-blocking drugs, and to review the literature on this subject.

Material.

Since the inception of ganglionic blockade as a method for the treatment of hypertension, there have been 12 cases seen at the Royal Prince Alfred Hospital of severe or moderately severe paralytic ileus attributable to these drugs.

The criteria for diagnosis are as follows. Nausea and constipation are common complications of this treatment and are present in addition to the typical clinical picture of ileus which includes distension, gastric residue or vomiting, complete constipation at some stage of the condition, reduction or absence of bowel sounds at some stage and radiological evidence of obstruction. However, the patients make complete recovery on the suspension of the

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drug. If the patient comes to laparotomy or autopsy, no organic obstruction can be found.

Incidence.

Paralytic ileus occurred in two of 50 patients treated with mecamylamine reported by Munster (1961). It was not possible to assess the incidence in patients receiving any form of ganglionic blockade because the majority of these patients would not be admitted to hospital. However, in a severe form, this complication would probably occur in less than 10%.

Clinical Features.

The sex incidence was equal, there being six men and six women. The average age in this series was 50 years, the youngest patient being 33 years of age and the oldest 78 years. A history of a diagnosed hypertension was obtained in all cases, and ganglion-blocking drugs had been administered for a period of from two days to three years prior to the onset of ileus. The dosage used varied with different drugs: in the case of mecamylamine it was from 7·5 to 50 mg. daily, and in the case of pentolinium from 80 to 1050 mg. daily. There were no cases of ileus due to hexamethonium in this series.

The presenting symptom in all cases was a change in bowel habit: eight patients suffered from constipation, in two cases an initial period of constipation was followed by diarrhœa, and the remaining two patients presented initially with diarrhœa. Within two days of the onset, nausea and vomiting became apparent, soon to be followed by abdominal distension with or without colicky abdominal pain. The pain could be situated anywhere in the abdomen, but was most frequent in the hypogastric region. The nature of the pain was nearly always colicky, and it was usually severe enough to require narcotics for sedation. Seven of the 12 patients complained of pain, four patients were pain-free and one patient was semi-comatose on admission, but could be roused by palpation of the abdomen.

On examination, the abdomen was found to be diffusely distended in all cases. Although tenderness was frequently present widely over the abdomen, rebound tenderness, if noticed at all, was very mild. The bowel sounds were usually described as being altered, and, in five cases, they were grossly diminished or absent. High-pitched and infrequent sounds were observed in two cases, in another two cases the sounds were not detectably different from normal. In the remaining three cases the bowel sounds were not recorded.

Plain X-ray films of the abdomen in all cases showed gas-distended loops of small and/or large bowel with many fluid levels. In three cases, not included in the present series, one of us has observed that with the two-enema test a large volume of the enema fluid may be injected and more than half of it retained without being passed for many hours. An opaque enema and an X-ray film will usually show distension of the transverse colon and caecal region and, usually to a much lesser extent, of the descending and sigmoid colon.

The clinical findings may be summarized as follows. The total number of cases was 12. Constipation occurred in eight cases, diarrhœa in 2, while constipation followed by diarrhœa occurred in two cases. Pain (central abdominal in one, hypogastric in three, epigastric in one, left hypochondrial in one, generalized abdominal in one) occurred in seven cases, while no pain was felt in five cases. Abdominal tenderness was present in six cases, and distension in all cases. Vomiting was present in 11 cases. Bowel sounds were decreased or absent in five cases, increased, high-pitched and infrequent in two, while normal sounds were heard in two cases. Bowel sounds were not recorded in three cases. X-ray films showed distended loops with fluid levels in eight cases, while X-ray films were not taken in four cases.

The course of the condition is, as a rule, benign, and recovery within three to ten days may be expected with naso-gastric suction, intravenous fluid therapy and electrolyte replacement, and suspension of the ganglion-blocking drug (Table I). Unfortunately, these patients often suffer from other complications such as a cerebro-vascular accident or renal failure; these, with the vomiting and electrolyte imbalance caused by the ileus, will add to the total morbidity and mortality of the ileus itself.

The effect of prophylactic administration of "Prostigmin" and the course and outcome of the illness are shown in Table I. Permission for autopsy was refused in Case VIII, and it is possible that the patient suffered a cerebro-vascular accident, but her consistent severe ileus may have contributed to the fatal outcome. In Case IX the patient apparently recovered from his severe ileus after six days' treatment with gastro-intestinal suction and intravenous fluid therapy. However, he relapsed and died 17 days later and autopsy revealed some residual ileus and a recent cerebro-vascular accident.

The long term prognosis after recovery from ileus is good, provided that of the underlying hypertension is also good. The blood pressure of these patients may be subsequently controlled satisfactorily, either by other ganglion-blocking or non-ganglion-blocking hypotensive agents, or even by reinstitution of the same ganglion-blocking hypotensive agents, without fear of recurrence of the ileus. Two of our patients had their hypertension controlled with "Darenthin" (bretylium tosylate, Burroughs Wellcome) after an ileus caused by mecamylamine. One was controlled satisfactorily with "Serpasil" (reserpine, CIBA) after ileus caused by a combination of "Ansolysen" and mecamylamine. Another was controlled with "Ansolysen" after mecamylamine ileus, and another two had no symptoms respectively one and four years after reinstitution of "Ansolysen" at reduced dosages after an ileus caused by the same drug.

Reports of Cases.

Four case reports are presented to illustrate certain typical features of this disease. The first of these (Case V) shows the classical course of this type of ileus, when uncomplicated. The second (Case VI) shows the delayed and stormy convalescence when mistaken laparotomy is carried out. The third (Case IX) shows the autopsy findings in ileus in a patient whose death was due primarily to a cerebrovascular accident. The fourth and most instructive case (Case XII) illustrates the curious coincidence of a woman who, after recovery from a straightforward "Ansolysen" ileus, developed intestinal obstruction four years later. As she was still on ganglion-blocking drugs, ileus was again diagnosed; but this time she did not have it, and died as a result of delayed laparotomy.

CASE V.—The patient was a woman, aged 42 years. She had been taking "Ansolysen" and "Serpasil" for hypertension for over two years. She developed constipation and vomiting, which were followed by abdominal distension. Next day she developed severe lower abdominal pain, constant in nature and necessitating the administration of pethidine for relief. The vomiting became worse, and next day absolute constipation ensued. On examination she was found to be distended and the abdomen was tender. Bowel sounds were recorded as present, but their nature unfortunately was not commented upon. A plain X-ray film of the abdomen demonstrated distended loops of small bowel with fluid levels. On naso-gastric suction and intravenous fluid therapy she made an uneventful recovery in three days.

CASE VI.—The patient was a man, aged 56 years, with diabetes for 13 years, hypertension for five years and congestive cardiac failure for two years, who was admitted to hospital for the treatment of the last-mentioned. He was put on a regime of "Ansolysen" (400 mg. per day), together with reserpine and digitalis. On the fourth day he developed constipation, copious vomiting and distension without pain. The bowel sounds were increased. A plain X-ray film of the abdomen showed dilated loops of bowel with fluid levels. "Ansolysen" therapy was suspended, and naso-gastric suction and intravenous fluid infusions were commenced. On the fourth day, as his condition was not improving, a mechanical obstruction was diagnosed and laparotomy was carried out. At operation, the stomach and small bowel were uniformly dilated. There was no evidence of organic obstruction. Decompression was not deemed necessary and the abdomen was closed. After the operation

TABLE I.
The Clinical Course of Ileus due to Ganglion-Blocking Agents.

Case.	Sex.	Age (Years)	Prostigmine Given.	Drug.	Duration of Ileus (Days).	Treatment.	Result.
I	F.	52	Yes.	Mecamylamine.	4	Suct. and Sal.[1]	Cure.
II	M.	33	Yes.	Mecamylamine.	3	Suct. and Sal.	Cure.
III	M.	48	No.	Pentolinium.	3	Expectant.	Cure.
IV	M.	78	No.	Pentolinium.	10	Suct. and Sal., I.V. eserine drip.	Cure.
V	F.	42	No.	Pentolinium.	3	Suct. and Sal.	Cure.
VI	M.	56	No.	Pentolinium.	14	Laparotomy.	Cure.
VII	F.	44	No.	Pentolinium.	3	Expectant.	Cure.
VIII	F.	45	No.	Pentolinium.	1	Suct. and Sal.	Death.
IX	M.	48	No.	Pentolinium.	17	Suct. and Sal.	Death.
X	F.	63	No.	Mecamylamine.	3	Suct. and Sal.	Cure.
XI	M.	50	Yes.	Mecamylamine.	10	Suct. and Sal.	Cure.
XII	F.	43	Yes.	Pentolinium.	3	Suct. and Sal.	Cure.

[1] Suct. and Sal. = naso-gastric suction and intravenous saline infusion.

the distension increased and hypotension ensued, which had to be treated with noradrenaline. Finally, the patient began to show a slow improvement, and two weeks later his bowel function returned to normal. He was discharged from hospital taking "Serpasil".

CASE IX.—The patient was a man, aged 48 years. He was a hypertensive who had been treated with 1050 mg. of "Ansolysen" daily for three months up to two days before his admission to hospital. Hospital admission was sought for a stroke, his third in two years. On the second day after admission—that is, four days after the "Ansolysen" therapy had been stopped—he began to vomit, the abdomen became distended and absolute constipation ensued rapidly. There was no pain and bowel sounds were recorded as being present. On suction and intravenous fluid infusion he made a good recovery, but soon his condition began to deteriorate again, and he died on the seventeenth day. Autopsy showed cerebral softening and pulmonary infarction. The small bowel was distended and contained fæcal fluid. There were adhesions around the small bowel, but these were not thought to be obstructing it, and the large bowel was also distended. The colon showed small submucosal hæmorrhages.

CASE XII.—A woman, aged 43 years, with essential hypertension for four years and congestive cardiac failure for two years, was given "Ansolysen" (averaging 300 to 400 mg. per day) and reserpine and "Prostigmine". On the fifteenth day of this regime she developed constipation, which, after two further days, changed to a profuse diarrhœa. This was followed by colicky, generalized abdominal pain with vomiting. The temperature was normal. There was distension, abdominal tenderness and mild rebound tenderness. An X-ray film showed "much gas in the bowel with several fluid levels". Naso-gastric suction and intravenous fluid replacement were followed by full recovery after three days. "Ansolysen" therapy was reinstituted (240 mg. per day) with "Serpasil", and she was discharged from hospital.

She was asymptomatic for four years afterwards, except that she developed intermittent claudication and was readmitted to hospital, where a bilateral lumbar sympathectomy was performed. She was discharged on a regime of "Darenthin" and chlorothiazide, which were thought to give better control of her blood pressure. However, whilst she was out of hospital the "Darenthin" was discontinued because of the expense, and mecamylamine (7·5 mg. per day) was substituted. Almost immediately she complained of constipation. Four days later she developed severe abdominal pain, vomiting and urinary retention. On readmission to hospital she was seen to be distended and exquisitely tender, with marked rebound tenderness and absent bowel sounds. An X-ray film showed dilated loops of bowel with fluid levels in the colon. The provisional diagnosis of mecamylamine ileus was made, and suction and the administration of intravenous fluids were commenced. Later in the same day she had a bowel action and was very tender vaginally and per rectum. Next day she became shocked and was treated with noradrenaline. The white-cell count was raised to 27,000 per cubic millimetre. Next day she was still very shocked and a laparotomy was carried out. Necrotic bowel was seen at operation consequent upon thrombosis of the inferior mesenteric artery. A partial colectomy and a colostomy were performed, but the patient died a few hours later.

Pathology.

Interest lay in the pathology of the disorder because the X-ray findings, together with the autopsy and laparotomy findings, show that the whole alimentary tract may be affected, from stomach to colon. Table II summarizes the pathological findings collected from the literature.

Discussion.

The incidence of the disease is difficult to assess because many patients must be treated with these drugs without reaching hospital. The present estimate of less than 10% agrees with Freis and Wilson (1955) (three of 35 cases) and Moyer *et alii* (1957) (two of 75 cases on mecamylamine). However, Moyer *et alii* in 1955 had reported a series of 62 patients treated with mecamylamine without ileus. Ford *et alii* (1955) also had a series of 30 cases free of ileus. Murphy (1951) recorded 30 patients treated with hexamethonium without ileus.

Once the diagnosis of paralytic ileus is considered, the clinical features of the disease should make the correct diagnosis apparent. The change in bowel habit is important. It is commonly constipation, but may also be diarrhœa (Waldron, 1958; Hirson and Kendall, 1951; Mackey and Shaw, 1951; Goldsmith, 1955; Council on Pharmacy and Chemistry, 1956; Furste and Taylor, 1958; Moyer *et alii*, 1957; Bourne and Hosford, 1951; Julian, 1960). Rarely, normal bowel action in the presence of abdominal distension, colic and vomiting may be seen (Gibson, 1957). Severe diarrhœa due to ulceration of the large bowel was reported in three cases by Barnett (1958), two with fatal results. Various explanations have been put forward for the appearances of the bowel at examination. According to Mackey and Shaw (1951) there is pressure necrosis of the bowel wall due to accumulation of fluid and gas in the intestine.

Ileus may also be found in new-born infants whose toxæmic mothers have been treated with ganglion-blockers; this type of ileus may also be fatal (Hallum and Hatchuel, 1954; Morris, 1953). Tenderness is not uncommon, but rebound tenderness is less common and is always only slight. Marked rebound tenderness, as in our Case XII, pyrexia, an elevated leucocyte count, rectal or vaginal tenderness or the presence of an abdominal mass are not consistent with the diagnosis and should immediately raise suspicions of other intraabdominal conditions. If the patient has been rehydrated and electrolyte imbalance has been corrected, severe shock and hypotension should also act as a warning that the condition is not purely ileus due to a ganglion-blocking drug.

The classical findings on auscultation of the abdomen are high-pitched infrequent sounds (Grant and Boyd, 1957; Waldron, 1958). However, the bowel sounds may also be diminished in intensity or absent, or increased and tumultuous. Uncommonly, they are normal (Gibson, 1957). These sounds may also succeed one another in type through the course of the illness. As in other types of ileus, a return of normal bowel function is heralded by the appearance of normal bowel sounds.

The most confusing symptom and the one most likely to lead to misdiagnosis is severe abdominal pain. It is common and its importance has been stressed in the literature (Grant and Boyd, 1958). Its presence and the variability of its maximal site are probably a reflection of

TABLE II.

The Pathology of Intestinal Obstruction Due to Ganglion-Blocking Agents.

Author.	Drug.	Mode of Examination.	Findings.
Present series, Case VI.	Pentolinium.	Laparotomy.	Uniform dilatation of stomach and small bowel with no evidence of organic obstruction.
Present series, Case IX.	Pentolinium.	Autopsy.	Small bowel grossly dilated containing fæcal fluid. Adhesions around small bowel, but no obstruction. Dilated large bowel, submucosal hæmorrhages in the colon.
Mackey and Shaw, 1951.	Hexamethonium.	Autopsy.	Stomach grossly dilated. Mucosa atrophic with numerous small erosions. Small intestine grossly dilated with congestion and œdema.
Goldsmith, 1955.	Hexamethonium.	Autopsy.	Stomach and six feet of small bowel dilated and filled with foul fæcal fluid. Area of thinning of bowel wall, but no perforation.
Grant and Boyd, 1957.	Mecamylamine.	Laparotomy.	Generalized small-bowel distension without evidence of mechanical obstruction.
Bourne and Hosford, 1951.	Hexamethonium.	Laparotomy.	Whole small bowel grossly distended, red, œdematous and filled with fluid. Slightly distended ascending colon.

the initially segmental nature of the intestinal paralysis, there being a hyperactive segment proximal to the paretic one. However, if the abdominal pain is sufficiently severe to require more than two doses of morphine for its relief in spite of gastro-intestinal suction, it is probably safer to undertake laparotomy than to observe any longer. Laparotomy need not be an extensive exploration if distended colon is present and no evidence of strangulation is found and, if the transverse and left colon are free of growth, no further palpation is required.

Other side effects of ganglionic blockade should also be watched for, such as tremor and agitation, which may occur concomitantly with the incipient obstruction (Murphy and Sutherland, 1959).

The dosage and length of therapy do not seem to play a significant part in the selection of patients who will develop ileus, as some patients may develop it after two to three days on quite low dosages, while others may go for years on high doses before developing ileus or, for that matter, other side effects. The prophylactic exhibition of neostigmine does not influence the development of ileus (Munster, 1961). It seems therefore that paralytic ileus is an unpredictable complication of ganglionic blockade and is a function of the individual sensitivity of each patient.

Many forms of treatment have been advocated. According to Moyer *et alii* (1955), constipation due to mecamylamine will disappear within a few weeks even if treatment is continued. However, most authors agree that once ileus is established, the ganglion-blocking drug should be suspended. It is also generally agreed that once the diagnosis is established, treatment should be non-operative (Grant and Boyd, 1957; Furste and Taylor, 1958; Gunn and Allen, 1954). The use of neostigmine has been widely recommended (Council on Pharmacy and Chemistry, 1956; Moyer *et alii*, 1957; Goodman and Gilman, 1955; Bourne and Hosford, 1951; Wood, 1959; Juergens, 1958). However, in a report on five cases of ileus in patients with gastro-intestinal tract hæmorrhage treated with "Banthine" (methanteline, Searle), Gunn and Allen (1954) found that "Prostigmin" actually increased the paralysis.

In any case, whether "Prostigmin" is given as well, accurate diagnosis and exclusion of other abdominal emergencies, suspension of the ganglion-blocking drug, naso-gastric suction, adequate fluid and electrolyte replacement will, in most cases, lead to satisfactory recovery.

Summary.

1. The clinical features of paralytic ileus due to ganglion-blocking agents are reviewed and 12 cases are presented.

2. The cardinal features are altered bowel function, abdominal pain, vomiting, distension and radiological findings of ileus. The differential diagnosis is discussed.

3. The severity of the abdominal pain and the degree of rebound tenderness must be most carefully assessed in the diagnosis of this condition.

4. The pathology is widespread involvement of the alimentary tract with distension by air and fluid, œdema of the bowel wall, congestion and ulceration of the mucosa.

5. Treatment should be non-operative; the ganglion-blocking agent should be suspended; naso-gastric suction with fluid and electrolyte replacement are the mainstays of therapy. The prognosis is usually good and control of the blood pressure may be achieved subsequently with the same or other hypotensive agents without inviting recurrence.

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THE MANAGEMENT OF MALDESCENDED TESTIS.

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FEW matters in pædiatric surgery have given rise to more differences of opinion than has the subject of this paper. Much of this confusion has been due to differences in terminology rather than in principle, but certain problems in treatment may be the subject of useful discussion.

In my view a maldescended testis can be defined as one which does not lie in the normal scrotal position. On closer examination cases fall into one of three groups: (i) retractile testes, comprising some two-thirds of cases of maldescended testes — the gland lies high, but can be manipulated into the scrotum with proper care (this is a normal state for small boys and no treatment is necessary, the testis coming to lie normally as it enlarges); (ii) undescended testes, comprising one-third of cases (there is arrest in the line of normal descent, the gland is abnormal, and treatment is by operation, which is often difficult); (iii) ectopic testes, which are very rare (the testis has turned aside from the line of normal descent, the gland and cord are normal, and treatment is by operation, which is a straightforward procedure).

The technique of manipulation is to milk the testis down by means of a firm stroking movement of the hand in the line of the inguinal canal towards the scrotum. The testis in a retractile case can then be caught from below the pubic ramus with the other hand, and clearly enters the scrotum. Certain borderline cases are encountered in which a decision is not possible at the first examination, but these get fewer with increasing experience. However, it should always be remembered that although 1% of boys show cryptorchidism at one year of age, this figure drops to 0·25% in adult males, and hence if doubt exists operation should be delayed.

In the ectopic group the testis lies in the superficial perineal pouch or beneath the skin of the penis. The cord is of normal length and a hernial sac is not usually present. Replacement of the gland in the scrotum at operation is easy. I can see no reason for the common practice of including in this group those cases in which there is a short cord and a hernial sac, and the gland lies near the external ring, anywhere within the confines imposed by the length of the cord and hernial sac and the superficial perineal pouch — and hence sometimes above, below, or lateral to the opening. They differ in no important way from other members of the group classified as undescended. No testis can, of course, lie outside the attachments of the membranous layer of the superficial fascia (Scarpa's fascia) to the fascia lata and the pubis.

There is little controversy about the treatment of these two groups — the first corrects itself at or about puberty and the second is never corrected except by operation.

In the undescended testis differences of opinion arise in regard to (i) the use of hormones; (ii) the age for operation; (iii) the procedure when no testis is found at operation after the canal is opened; (iv) the fixation of the testis at the end of operation.

The last of these can be dismissed shortly. There is no doubt that some form of fixation which will last at least a month or two is necessary. Cases have been seen in which the patient has left hospital at the end of 10 days or so with the testis well down in the scrotum, and come back after a further month with the gland lying fixed in the pubic region, because of the retraction of scar tissue in the cord. The use of the Ombredanne manœuvre (in which the testis is passed through a small opening in the scrotal septum) is rapid, effective, and does not require a second operation. It is a most satisfactory method, particularly as the septum will come well up to meet a high testis and will subsequently draw it down to a lower level. Bilateral cases with a high testis on both sides are best dealt with in two stages, as undue tension of one or both cords may otherwise occur.

The continued use of hormones is due largely to their exhibition in cases of retractile testis misdiagnosed as undescended, where they are, not unnaturally, effective. It seems illogical to use them in unilateral cases, where the contralateral gland is of good size and normally placed. It is difficult to believe that they will dissolve the hernial sac, which is the shortest element in the short cord, nor can one overlook the deformities of the gland and the abnormal development of the epididymis, which are mechanical factors in the production of undescent, and presumably also militate against a response to the natural hormones. Finally at operation a fascial barrier exists at the opening of the scrotum, presumably as a result of the absence of the gubernaculum during the development of this area. They would seem to have a place in the bilateral case where there is no evidence of hormone deficiency. Their slight value in increasing the size of the parts in the usual case is more than offset by the social difficulties of a precipitated puberty and the unhappiness the long series of injections causes to the victim.

Modern practice is moving towards earlier operation. The old theory (that the increased temperature to which the seminal epithelium is subjected by reason of the extrascrotal position is harmful) having been discarded, has now being reinstated by the work of Cooper (1929), who has shown that histologically undescended testes are normal up to four years of age, and then progressively the appearances fall behind that of the normal gland. In any case if no doubt exists as to the diagnosis no special advantage accrues from delay. Accordingly the tendency at the Royal Alexandra Hospital for Children is at present towards operation at five or six years of age.

There remains the consideration of what procedure to adopt if the testis is not found when the canal is opened. If a hernial sac is present traction on it will usually produce a testis at the internal ring. However, if this does not occur, or if no sac is present, further decision must depend upon the following considerations: (i) the testis is absent in a number of cases (no definite figure can be found for the incidence of this); (ii) although Wyndham states that at all stages of development of the testis the lower pole lies just at the internal ring, and that therfore the testis will be found in this situation if it is present, certain cases at the Royal Alexandra Hospital for Children have shown the retained testis occupying a pelvic position very similar to that of normal ovaries in undoubtedly male patients; (iii) such truly intraabdominal testes can rarely be brought into the scrotum and too determined attempts to do so may lead to loss of the testis and its important internal secretion.

My own inclination therefore is to enlarge the internal ring and to insert a finger into the abdominal cavity. If a testis is not palpated nothing more is done. An objection to this is the possibility of malignancy developing in the retained testis. It is stated (Campbell, 1942) that the risk of malignancy in an undescended testis is 14 times the rate in normal testes if the gland lies in the inguinal region, and 33 times the normal rate if the gland is retained in the abdomen, and the figures for the occurrence of malignancy vary from 5% in the latter instance. Authorities differ in their opinion as to whether protection against malignant change is given by the bringing of the gland down into the scrotum, and this appears very doubtful. It would seem that if one is to remove the abdominal testis it would be equally logical to excise all undescended testes, and this is a step which it appears unwise to take on present evidence. The matter is one in which further clinical research would be most useful.

The remaining problem is purely technical. In certain cases, particularly those in which the testis is intra-abdominal, difficulty is experienced in finding sufficient length of cord (that is, vessels) for the testis to reach the scrotum. This may occur in spite of division of all fibrous strands in the cord, and the freeing of attachments of such fibrous tissue in the retroperitoneal space. Under these circumstances certain procedures may be of value: (i) the fixation of the testis at as low a level as possible followed by a further operation six months or more later; (ii) the high operation described by Gross, in which the vessels are followed to their origin, and the structures of the posterior wall of the inguinal canal divided to allow the cord structures to pass more directly down to the scrotum, and hence gain more length; (iii) division of the spermatic vessels of the cord, as described recently by Douglas Stephens and Robert Fowler of Melbourne, which appears so frightening that I have not yet attempted it.

Of the three I would prefer the first — "He who fights and runs away lives to fight another day". In actual fact with a carefully performed operation this will rarely be necessary.

Summary.

This paper has outlined some of the problems in treatment of this important surgical condition. The course of action followed by the author in these circumstances has been indicated.

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Reports of Cases.

PSEUDO-DUPLICATION OF TESTIS.

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Clinical Record.

THE patient was born on July 22, 1959. The delivery was normal and he was the second son of a young couple.

When he was three days old his abdomen was thought to be distended. He had not been sucking well, and was vomiting after most feeds. He was transferred and admitted to the Royal Alexandra Hospital for Children on July 26. He remained there until July 31 and seemed to be quite happy; he vomited once only.

However, on his return to Kempsey, he once more found the climate unsuitable and had attacks of pain and vomiting. It was then noticed that a lump was present in the left inguinal region. Reduction of the left inguinal hernia enabled the feedings to be continued in peace and the vomiting stopped, but the hernia kept coming down and interfering with feeding and other natural proceedings. The performance of the operation of left inguinal herniotomy was decided on, to give relief to the mother and the child. There were two testes in the scrotum and the hernia could be easily reduced.

At operation in December, 1959, the lower end of the hernial sac was exposed, and both testes came up into the incision. There was a triangle of tissue (probably tunica vaginalis) extending from the internal ring to the external ring, where it divided and continued to both testes. There were two cord-like structures, one coming from each testis. These cords remained separate until they could no longer be seen or felt at the internal ring. When the tissues were held up, the testes were seen to hang, with the epididymes, in the normal lateral position and they were of equal size. The scrotum was inspected and found to consist of one compartment only. Dissection of the right side of the scrotum failed to demonstrate any septum or even any opening into the right inguinal region. The testes were returned to the scrotum and the hernial sac was ligated and removed.

Since then, inspection and palpation of the right inguinal region has failed to reveal any sign of a testis in that area.

Discussion.

Polyorchidism is much more frequent than pseudo-duplication of the testis. Wilson and Littler (1953) describe pseudo-duplication as occurring when one testis crosses the mid-line during its descent. The vasa may stem from one seminal vesicle, the common trunk dividing to supply a duct to each testis, but the testicular arteries always arise normally from the aorta. One crosses the mid-line to reach the testis on the opposite side of the body.

Eight cases of pseudo-duplication of the testis have been reported in the literature. Banks (1926) reported four as well as his own. However, Banks had not reported those cases of Marsh (1911) and Lowe (Annotation, 1911). Marsh had also reported on that of Ahlfeld. All these cases have slight variations from the above case. Wilson and Littler also state that almost always, in polyorchidism, the supernumerary testis is different in size from its companion, usually being smaller, and their combined bulk has been approximately equal to that of the testis of the unaffected side.

Banks (1933) says that polyorchidism should be proved by histological examination, as there are three pitfalls in diagnosis: (i) cyst of the epididymis; (ii) hydrocele of the cord; (iii) tuberculosis of the globus major. Besides these one must consider pseudo-duplication of the testis. Also, in polyorchidism, the upper testis has no gubernaculum and so may not pass through the inguinal canal. The case for the diagnosis of pseudo-duplication in this instance is that the two testes were of normal and equal size. They both had epididymes and apparently separate vasa deferentia, at least to just beyond the internal ring. There was only one compartment in the scrotum and there was no opening through the external ring on the right side.

There is, admittedly, a possibility that this could be polyorchidism with an undescended right testis, and this could be resolved at a later date if the patient requires laparotomy for some reason.

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HYPERVENTILATION SYNDROME PRESENTING AS A REACTION TO TETANUS ANTITOXIN.

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THE introduction by the Commonwealth Serum Laboratories of a standardized subcutaneous test dose was a milestone in the colourful history of tetanus prophylaxis. Trinca (1960*a*) outlined the background to this development, based on the original recommendations of Laurent and Parish (1952), who used varying trial doses of "0·1 ml. or, preferably, 0·2 ml. of serum or of a serum dilution".

The subcutaneous trial dose now employed is 15 units of tetanus antitoxin in 0·5 ml., the injection being given with the intention of eliciting a mild general reaction in the sensitive subject. These authorities have not defined the general reaction, but in the brochure provided for the clinical trials and still currently issued, the following appears under the heading of "Reactions":

> Any constitutional reaction following the trial dose should be mild and easy to treat. Varying degrees of some of the following signs and symptoms may occur: pallor, rapidity of pulse, general sensations of heat, itchiness or urticaria, swelling of the tongue or lips, an irritating cough, breathlessness or wheeziness, tightness in the throat or chest, nausea or vomiting, abdominal pains or discomfort, giddiness, loss of consciousness or convulsions.

Any such symptoms or signs noted after the trial or therapeutic doses of the antitoxin may indicate anaphylaxis, or may have an entirely different ætiology and be more or less harmless. The user is now left with the awkward problem of just how to decide that a developing reaction will be severe. Hence an aid in the differential diagnosis could be invaluable.

As the general public is well aware of an occasional severe reaction to tetanus antitoxin, the procedure could be classed as an unpleasant ordeal. In view of this, it is always worth while to anticipate a hyperventilation reaction such as occurred in the following case.

Clinical Record.

The patient was a station hand, aged 20 years, who presented on the evening of June 11, 1960, with a minor finger abrasion, and requested a "tetanus needle".

The subcutaneous test dose was given and was followed after 30 minutes by 1500 units of tetanus antitoxin given by intramuscular injection into the same arm, there being no local or constitutional reaction up till that time.

Twenty minutes later the nurse reported that the patient was complaining of nausea, a swelling around the eyes and a tight feeling above the eyes. He had said that he was feeling hot, and complained of blurring of vision. When examined, he appeared agitated; his colour was normal and slight tachycardia and tachypnœa were present, but there was no evidence of a rash or of periorbital œdema.

The patient was managed as an acute hyperventilation syndrome victim; "Carbogen" (oxygen containing 5% carbon dioxide), at a flow rate of 12 litres per minute, was administered through a Commonwealth Industrial Gases "Polymask". The patient was instructed to breathe slowly.

Fifteen seconds later, he suddenly stated that he could see quite clearly again and that the room appeared to be much brighter. After one minute treatment was suspended. He was then able to report that he felt very relaxed and had lost his nausea entirely; his eyes felt normal, the tight band above his eyes had disappeared and he felt cool.

After being given an understanding of his reaction, he volunteered that he had noted similar symptoms, particularly the blurring of vision, immediately before football matches. Also, a few days later, he was able to reproduce the symptoms of his reaction on demand by deliberate hyperventilation, with the variation that in both instances the nausea was not so marked.

Discussion.

The subcutaneous trial dose system has greatly facilitated screening for sensitivity to tetanus antitoxin and has demonstrated that very few patients are, in fact, allergic to this preparation. Trinca (1960*a*) found only nine reactors in 4500 trials in one series, and even in some of these he was uncertain whether the shock syndrome was traumatic, vasovagal or anaphylactic in origin.

The problem to be faced is the interpretation and correct management of these few remaining general reactions. It is considered that a primary differential diagnosis can be made between anaphylaxis and pseudoanaphylaxis, the latter embracing traumatic or vasovagal shock, emotional influences and hyperventilation, or some combination of these.

In determining whether or not such a measure would be worth while in the time provided, a significant fact emerges in that no fulminating anaphylactic reaction to the trial (Commonwealth Serum Laboratories) or therapeutic injection had been reported after the issue of more than 200,000 doses (Trinca, 1960*b*), so the odds are very heavily against such an experience.

Undue emphasis on a pseudoanaphylactic response could be actually detrimental to the patient if adrenaline therapy was launched unnecessarily. There is always a risk of overdosage under these circumstances, because opinions vary so widely here. Parish (1958) recommends an immediate intramuscular injection of 1 ml. of a 1:1000 strength, followed by a further 0·5 ml., if warranted, in 20 minutes. Trinca (1960*b*) favours an initial dose of 0·5 ml. of the same strength adrenaline, given intramuscularly, if the reaction is severe, and smaller subcutaneous doses if it is milder.

Also, from the viewpoint of the patient, a further disservice would be done if necessary tetanus prophylaxis was withheld without due cause. It would appear, in short, that the onus is on the operator to be certain that anaphylaxis is present or developing.

This is not easy on purely clinical grounds alone, because the four alternative conditions referred to above, or a combination of these, may express themselves through the same (mixed autonomic) pathway, the reactions to be looked for being mostly suggestive of cerebral hypoxia.

When "Carbogen" is available, the problem is automatically resolved. The mechanisms in pseudoanaphylaxis respond well to "Carbogen", given at a flow rate of 10 litres per minute or more, through a "Polymask" or demand system. Improvement may be expected within 15 to 30 seconds. A brief period in a supine posture may also be required in true vasovagal shock. Of the nine reactions quoted by Trinca, at least seven would probably have been "Carbogen"-sensitive.

This valuable method of simultaneous diagnosis and therapy is restricted to "Carbogen". Unfortunately, oxygen is not a satisfactory substitute, as Malette and Eiseman (1958) have demonstrated a paradoxical cerebral hypoxia in dogs with hyperventilation with 100% oxygen. The relative efficiency of the method depends entirely on the prompt availability of "Carbogen" to the subject, a matter which has to be decided on an individual clinic basis. A miniature portable cylinder is ideal in most cases.

Finally, although urticarial phenomena observed after a serum injection must always be regarded with concern and treated promptly, the mechanism here may also be nonspecific. Wittkower and Russell (1953) found a variety of psychopathological mechanisms operative in urticaria, and Graham and Wolf (1950), after investigating 30 unselected cases of chronic urticaria, concluded that attacks were highly correlated with emotional disturbances of a particular kind and were without relationship to allergens.

In conclusion, it would appear that the use of "Carbogen" in adequate amounts will be beneficial in the diagnosis and management of doubtful reactions, resulting in the simpler and safer administration of tetanus antitoxin.

Summary.

1. In the testing for general sensitivities to sera, false positive reactions may be encountered.

2. A case of hyperventilation syndrome (one of these reactions) is presented.

3. Attention is drawn to the usefulness of "Carbogen" for diagnosis and therapy in pseudoanaphylactic reactions.

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APPENDICITIS SIMULATING CROHN'S DISEASE.

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THERE are few surgical reviewers or surgeons who, when discussing Crohn's disease (regional ileitis) in its acute form, do not comment that a goodly percentage of their cases are commonly confused with appendicitis and appendiceal abscess, the true diagnosis being made at operation when the appendix appears too healthy to be the cause of the symptoms and signs. Crohn makes this point well in his own monograph in the "Text Book of Medicine" (Eighth Edition), by Cecil and Loeb.

The following case is reported for interest. Both the symptoms and signs suggested Crohn's disease, but at laparotomy acute appendicitis was found to be present.

Clinical Record.

The patient was a trained nurse from Holland, and was aged 31 years. She was first examined on July 29, 1958, when she presented with a history of abdominal pain for four days, which was colicky in nature, and mild diarrhœa. There were no other significant symptoms.

On examination, her temperature was found to be normal; she was slightly tender in the right iliac fossa, a positive Rovsing's sign was present and release tenderness was absent. She was thought to be, on this occasion, suffering from subacute appendicitis. She was treated conservatively with fluids and antibiotics and settled down.

On August 7 she was examined again; she had pain of a colicky nature and on this occasion it was thought that she might have a mass in her right iliac fossa. On rectal and vaginal examination a large, sausage-shaped mass was felt, which was about three inches long and freely mobile. A provisional diagnosis was made of (i) Crohn's disease, and (ii) appendiceal abscess.

On this occasion the patient did not appear very ill and it was considered that a barium follow-through X-ray examination would be quite a safe procedure. This was done on August 13 and was reported on as follows:

> There is gross distortion of the outline of the terminal ileum with a filling defect in the caecum—the lumen of the terminal ileum is narrowed. The appearance is typical of nonspecific ileitis or Crohn's disease.

As this examination precipitated pain and vomiting, the patient was admitted to Sutherland District Hospital. She was managed in the usual manner, being given intravenous fluid therapy, suction drainage and antibiotics. She settled down satisfactorily without any surgical intervention and was discharged from hospital after 12 days.

On March 24 of the following year, after a follow-up visit, during which the patient stated that she had occasional bouts of diarrhœa and colicky pain and some slight passage of mucus, but of lessening severity, it was decided to repeat the barium X-ray examination. On this occasion the radiologist reported:

> Considerable improvement appears to be present and the caecum is now regular in outline. There is no typical evidence of pathology in the follow-through examination.

The patient then failed to report for any further check and was not seen for some time. However, subsequent interrogation when she was finally observed elicited the fact that she had suffered from what she described as "nagging pain" in the right iliac fossa accompanied by some occasional diarrhœa, but that she had declined any further investigation or treatment as she had considered that it would settle down.

On September 29 of the next year — that is, approximately 18 months after her last checkup—she presented at home with severe pain in the right iliac fossa, severe tenderness in the right iliac fossa and some vomiting. On examination, she was found to have a generalized rebound tenderness of the abdomen, which was considerably distended. She looked extremely ill and had been in this condition for approximately 18 hours.

On readmission to Sutherland District Hospital, she had a temperature of 100° F. and a very coated tongue; there was generalized rebound tenderness and guarding, the bowel sounds were present but reduced and on rectal examination a tender mass could be felt. A diagnosis of appendiceal abscess was again considered, but, in view of her first X-ray report, a plain X-ray film of the abdomen was taken to elicit whether the bowel might have ruptured and this was reported on thus:

> There is some local dilatation of some coils of terminal ileum. There are two fluid levels present, apparently at the base of the caecum. The radiological appearances are those of an early partial obstruction in this region.

Operation Findings.

The same afternoon a laparotomy was performed and the following findings were recorded. She had acute appendicitis, the terminal two inches of the appendix being firmly adherent to the terminal ileum for a distance of about two inches. There were 6 to 8 oz. of thick, turbid fluid present in the peritoneal cavity and there were fibrin adhesions between some loops of terminal ileum. No evidence of ruptured bowel could be seen. The appendix was removed, and the terminal eight feet of ileum, both by inspection and palpation, showed no evidence of either a single mass or the so-called "skip lesions" of regional ileitis. Microscopic examination of the appendix showed only acute appendicitis.

Recovery was quite uneventful, and the patient has been quite well since with no further pain or diarrhœa.

This case is reported, not because it introduces new thought, but as a matter of interest, since a very common disease simulated an uncommon one so well, the reverse being the usual order of things.

Acknowledgements.

My thanks are due to my colleagues at Sutherland District Hospital for their assistance in the radiological examinations.

MENDELSON'S SYNDROME (INHALATION OF GASTRIC CONTENTS) IN ANÆSTHESIA AND SEDATIVE OVERDOSE.

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IN 1946 Mendelson described a previously unrecognized pulmonary complication of general anæsthesia. He attributed the distinctive features of this syndrome to the irritative effects of inhaled gastric hydrochloric acid. He reproduced the syndrome in rabbits, using N/10 hydrochloric acid and fluid human gastric contents. His cases

occurred in an obstetrics department, but since then the syndrome has been described in patients undergoing anæsthesia for general surgery.

The clinical features of Mendelson's syndrome are dyspnœa, cyanosis, tachycardia, bronchospasm, pulmonary œdema and heart failure following the inhalation of fluid gastric contents. X-ray films of the chest show diffuse mottled opacities. The onset of the symptoms and signs may be delayed till many hours after the inhalation, and the amount inhaled may be small and pass undetected at the time. The outcome may be fatal.

The treatment as described in textbooks consists of general supportive measures, the inhalation of pure oxygen and the administration of bronchodilating drugs and digitalis. Cortisone administration has been advocated, especially for patients in the puerperium (Hausmann and Lunt, 1955).

In this paper four cases of Mendelson's syndrome are reported. In each case the bronchospasm and pulmonary œdema were of such severity that spontaneous respiration was inadequate for survival and artificial positive-pressure respiration was used, in addition to the treatment described above.

Case I.

The patient, a male, aged 35 years, had a history of asthma, but had had no attacks for four years. He had undergone cholecystectomy for acute cholecystitis and cholelithiasis. Six days later laparotomy became necessary for a suspected bile leakage. During the induction of anæsthesia the patient regurgitated a large amount of brown fluid and inhaled some of this. An endotracheal tube was passed, the trachea was sucked out and the lungs were inflated with 100% oxygen via the endotracheal tube. There was an almost immediate intense bronchospasm which made inflation extremely difficult. His condition remained critical for the first six hours.

He was given by intravenous injection 0·5 gramme aminophylline, 200 mg. hydrocortisone hemisuccinate, 75 mg. pethidine, 75 mg. promethazine and 0·5 mg. digoxin with no obvious change in his condition. His pulse rate varied between 160 and 200 per minute. When he was allowed to breathe spontaneously, his respiratory rate was 50 per minute. He was moderately cyanotic while being manually inflated, and deeply cyanotic when breathing spontaneously. The systolic blood pressure remained about 100 mm. of mercury, but his peripheral circulation was poor. Pulmonary œdema was present.

A bronchoscopy revealed spasm of the air passages. Laparotomy was performed and a left subhepatic collection of bile was drained. A tracheostomy was then performed and a cuffed endotracheal tube was inserted through this opening.

Six hours after the original episode the patient was still being manually respirated, as his cyanosis became more marked when he was allowed to breathe spontaneously. Despite a great respiratory effort his tidal volume was small. He was established on a Blease "Pulmoflater" at a positive pressure of 30 cm. of water and negative pressure of −5 cm. of water.

The bronchospasm lessened over the next 24 hours, and less pulmonary œdema fluid could be aspirated from the trachea. The patient's general condition improved, but he still became cyanosed after two minutes of spontaneous respiration. After four days he was able to maintain adequate spontaneous respiration, although his chest expansion was still reduced and his respiratory rate was 40 per minute. An X-ray film of his chest taken 18 hours after the inhalation showed emphysematous lung fields, and further X-ray films taken on the fourth and eleventh days showed streaky opacities extending from the left hilum.

The patient made a full recovery from both his abdominal and pulmonary conditions.

Case II.

A woman, aged 44 years, took an overdose of phenobarbitone tablets. Her husband made her drink black coffee as an antidote, but she lost consciousness. On arrival at the ward she was comatose; cyanosis was not evident. The airway was partially obstructed when the patient was lying supine. During transfer from the stretcher to the bed she regurgitated gastric contents and inhaled them. She then became deeply cyanosed and stopped breathing. The pharynx was aspirated and she was respirated by means of a bag and mask; nevertheless cyanosis persisted. An endotracheal tube was passed and 5 ml. of liquid vomitus were aspirated from the trachea. She did not breathe spontaneously, so she was hand-ventilated by a bag with oxygen and then by a Radcliffe intermittent positive-pressure respirator at 25 cm. pressure and 37 cycles per minute.

Bronchospasm was noted within minutes of inhalation, rhonchi being audible for 12 hours. Moist sounds were heard throughout the chest for the first four hours. She remained mildly cyanotic for eight hours, with poor peripheral circulation and hypotension. The latter responded to the intravenous administration of concentrated human serum albumin. Fifty hours after the patient's admission to hospital spontaneous respiration was adequate, with obvious effort and forced expiration. An X-ray film of the chest taken 24 hours after admission showed streaky opacities over the right lung field.

The patient was discharged, physically well, six days later.

Case III.

A woman, aged 43 years, was admitted to hospital after having taken two or three ounces of pure paraldehyde. Her family forced her to drink salt-water when she was semicomatose. On admission to hospital she was cyanotic and fluid was running from her mouth. She made occasional gasping, completely obstructed, respiratory efforts. Examination of her larynx showed gross swelling of the arytenoids, and firmly adducted cords. The larynx was bathed in a watery fluid, which smelled of paraldehyde. An endotracheal tube was passed through her larynx and her lungs were ventilated by an "AMBU" bag. Some fluid was sucked from the trachea. There were widespread râles and marked bronchospasm. Ventilation was continued with a Radcliffe respirator at a pressure of 25 cm. of water, and later with a Blease positive-negative respirator. When the patient was allowed to breathe spontaneously, intense cyanosis developed. Sixteen hours after admission to hospital she was conscious. Artificial respiration was then ceased and the endotracheal tube was removed. Moderate cyanosis developed and was relieved by the administration of oxygen. Obvious effort was needed to maintain respiration in both inspiratory and expiratory phases; the chest expansion was poor; there was no upper respiratory obstruction.

Some degree of bronchospasm and widespread râles persisted for six days. X-ray films of the chest showed mottled opacities in the right lower zone. The patient was discharged from hospital 14 days after admission, being then physically well.

Case IV.

A male, aged 36 years, was admitted to hospital after taking 18 grains of sodium pentobarbitone when under the influence of alcohol. On arrival at the hospital he was lying supine. Deep cyanosis was present, the respirations were gurgling, and the pharynx contained fluid vomitus. The pharynx was aspirated, but the patient remained cyanotic. Laryngeal spasm and particularly forceful expiratory movements were present, also loud tracheal rattles. The cyanosis did not decrease during vigorous ventilation with oxygen by means of a bag and mask. The decision was then made to pass an endotracheal tube to facilitate aspiration of the trachea and to relieve the laryngeal obstruction. This was not possible until the patient had been given 100 mg. succinylcholine chloride intravenously. Large amounts of brown

fluid were then sucked from the trachea; the cyanosis persisted. Bronchospasm, widespread moist sounds and violent expiratory straining and wheezing were present. Cyanosis and bronchospasm lessened after 0·5 gramme aminophylline was given intravenously. Manual artificial respiration was continued during the next four hours, but was hampered by the patient's violent expiratory efforts in response to tracheal suction or painful skin stimulation. Cyanosis developed each time this was done. He was fully curarized with *d*-tubocurarine chloride at this stage. Intermittent positive-pressure respiration was continued, with no further cyanosis until muscle power returned sufficiently for straining to recur. Further *d*-tubocurarine was given on three occasions for this reason. Thirteen hours after his admission to hospital he was awake and able to breathe adequately. Bronchospasm and some scattered moist sounds persisted for two days.

He was discharged physically well.

The need for relaxants will be appreciated by anæsthetists who are familiar with the bronchospasm and expiratory straining present in some patients who are stimulated under light anæsthesia.

Each patient was given broad-spectrum antibiotics as a prophylactic measure, and each had purulent sputum for several days. Aminophylline was given intravenously to each, and appeared to reduce the bronchospasm in one (Case IV). Adrenaline was given intramuscularly to two patients (Case I and Case III) and did not appear to affect the bronchospasm. Oxygen alone did not prevent cyanosis in any case. In Case I, Case III and Case IV the patients were capable of strong respiratory effort, but this was inadequate in the presence of severe bronchospasm and pulmonary œdema. High positive pressures (25 to 33 cm. of water) were necessary to inflate the lungs. Negative pressures in the expiratory phase were necessary when expiration was critically reduced.

Summary.

Four cases of Mendelson's syndrome are reported, one following general anæsthesia, three after self-administered sedative overdose. Each patient required artificial respiration, as the pulmonary lesions caused gross reduction in lung compliance.

Conclusions.

This small series of cases shows that patients with Mendelson's syndrome may be saved by vigorous artificial respiration applied when other measures have proved ineffective.

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RECURRENT TETANUS: REPORT OF A CASE.

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RECURRENT TETANUS is uncommon. Mobus (1950), discussing a case of recurrent tetanus, reviewed the literature and found 54 case reports of recurrent tetanus. Since then, Gunaratna (1958) reported a case of recurrent tetanus from ear infection. The purpose of this paper is to report a case observed in Malaya.

Clinical Record.

A Chinese girl, aged 12 years, was admitted to hospital on July 19, 1958, with a history of difficulty in swallowing and stiffness of the back for four days and recurring generalized spasms for three days. A month previously her left foot had been pricked by a nail, and seven days previously she had scratched her left foot whilst playing on a muddy beach. She gave no history of having had tetanus toxoid inoculation. On examination she was conscious, her temperature was 103° F., her blood pressure was 100/70 mm. of mercury and her respiration rate was 35 per minute. Scattered moist sounds were present in both lungs. There was a *risus sardonicus* and intense trismus. The sternomastoids and muscles of the neck were tense, the abdominal muscles were rigid and the back was opisthotonic. Both upper and lower limbs were moderately hypertonic. A number of scratches were seen over the left ankle and foot. Severe generalized reflex spasms were occurring at intervals of five to ten minutes. The cerebro-spinal fluid was clear, colourless and under normal pressure; the cells numbered two per c.mm. (lymphocytes), and the protein level was 15 mg. per 100 ml., with no globulin. The level of sugar was 121 mg. per 100 ml., and the chloride level was 700 mg. per 100 ml. A smear and culture yielded no growth of pathogens. Radiological examination of the chest showed bronchopneumonic changes in both lung fields.

Antitetanus serum was given intravenously (50,000 international units) and intramuscularly (50,000 international units). Tetanus toxoid was not given and the superficial scratches on the foot and ankle were not surgically excised. The patient was sedated with intramuscular injections of chlorpromazine (50 mg. six-hourly for 10 days) and intramuscular promethazine (25 mg. twice daily for nine days), and 0·5 gramme to 1·0 gramme of thiopentone daily was administered by continuous intravenous drip for nine days. From the tenth day, intramuscular injections of phenobarbitone (45 mg. twice daily) were given for two weeks. Penicillin and streptomycin were given for 24 hours, but as the temperature continued to rise, a change to intramuscular injections of terramycin (100 mg. eight-hourly) was made on the second day. On the same day the patient developed respiratory distress. A tracheostomy was performed and a cuffed endotracheal tube was inserted. Eighteen days after admission to hospital she was free from spasms, and by the thirty-fifth day the hypertonus had completely regressed. Forty-two days after admission the patient was discharged from hospital completely symptom free. When reviewed at the follow-up clinic 16 days later she was well and normal.

The patient was readmitted to hospital on October 20, 1958, eight weeks after her discharge, with a history of six days' difficulty in walking, four days' locked jaw and generalized stiffness. She had fallen and scratched her left elbow nine days before admission.

On examination, the child was conscious, her temperature being 98·4° F., her blood pressure 110/70 mm. of mercury, and her pulse rate 130 per minute. There was a small abrasion scar on the left elbow. There was *risus sardonicus*, trismus and hypertonicity of the sternomastoid and neck muscles. The abdominal and back muscles were rigid and the lower limbs were more hypertonic than the upper. Mild generalized spasms appeared intermittently. All investigations, including plasma protein electrophoresis, yielded normal results. Antitetanus serum was not given, as an intradermal test produced a severe local reaction. The patient was sedated with intramuscular injections of chlorpromazine (100 mg. six-hourly) and promethazine (25 mg. twice daily) for four days; from the fifth day oral administration of chlorpromazine (50 mg. six-hourly) and promethazine (25 mg. twice daily) was continued for seven days; thereafter phenobarbitone (30 mg. twice daily) and chlorpromazine (50 mg. when

required) were given for three weeks. Prophylactic injections of penicillin were administered for 12 days. Severe trismus with mild generalized reflex spasms lasted five days and localized spasms of the lower limbs for 21 days. Generalized stiffness persisted for 60 days, but the lower limbs remained stiff for 70 days. The patient was fit and well when discharged from hospital on February 4, 1959, 98 days after her admission.

Discussion.

The first infection was presumably from either the nail-prick one month before the admission to hospital, or the scratches on the left foot sustained three days before the appearance of the symptoms. The second attack of tetanus appeared eight weeks after recovery from the first, and three days after the injury to the left elbow. The injuries preceding the first infection, being trivial and superficial, were unlikely to contain a nidus of infection which might recrudesce—in fact these multiple scratch marks over the left foot and ankle were so trivial that no surgical excision was carried out. Thus, whilst one must recognize the possibility of recrudescence of infection in the original wounds being the cause of the recurrent tetanus, a reinfection through the elbow abrasion was probably the more likely cause. Although chronic, recurrent tetanus due to the persistence of a foreign body or a focus of infection is relatively common, a true second attack in the same patient is rare, there being only two clear references in the medical literature published in English (Westwater, 1917; Gunaratna, 1958). This is surprising, as Spaeth (1949) states that a clinical attack of tetanus does not give immunity to subsequent attacks.

This patient was not given tetanus toxoid. Is it advisable actively to immunize tetanus patients with tetanus toxoid? Boyd (1946) reported 19 cases of tetanus in 289,649 actively immunized battle casualty patients in World War II. Long and Sartwell (1947) reported the occurrence of 12 tetanus cases with five deaths in United States Army personnel who had been actively immunized during the entire war period. This latter mortality rate of 0·02 per 100,000 per year compares favourably with the civilian mortality rate of 0·41 per 100,000 per year in comparable age groups during the preceding four-year period in the United States. Thus, despite exceptions, the dramatic effectiveness of tetanus toxoid prophylaxis is apparent from the records of World War II. Further, clinical as well as experimental studies show that previous experience of a soluble antigen leads to its much accelerated removal from the circulation on a second or subsequent injection, with consequent curtailment of its effectiveness as a passive prophylactic agent. Hence, Littlewood, Mant and Payling Wright (1954) recommend that once a person has received an injection of any horse serum antitoxin, irrespective of the disease for which it may have been given, that person should be immunized against diphtheria and tetanus with the appropriate toxoid. Adoption of this recommendation in this case might well have prevented the recurrence of the tetanus.

Summary.

A case of recurrent tetanus occurring eight weeks after full recovery from the first attack is described. Its pathogenesis and immunology are briefly discussed.

References.

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CEREBRAL RHEUMATISM.

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CEREBRAL MANIFESTATIONS of acute rheumatic fever, apart from chorea, are not often mentioned in the standard texts, and reported cases are few. It is therefore felt that the following case may be of interest.

Clinical Record.

The patient was a healthy girl, aged 21 years, who had achieved considerable distinction as a sportswoman and who had had no previous illness of consequence. She was first seen on October 11, 1960. She gave a history of having had a very sore throat one month previously (when there was an outbreak of streptococcal throat infections in this district). For three weeks she had suffered from intermittently aching and swollen knees and ankles, and pains in the wrists and elbows. She had felt generally unwell. There had been no skin rashes or nodules observed by the patient. When she was examined there were no clinical abnormalities detected in her cardio-vascular or other systems. Urinalysis, including a microscopic examination, also revealed no abnormality. She had, however, a blood sedimentation rate of 89 mm. in the first hour (Wintrobe), with a hæmoglobin value of 13·3 grammes per 100 ml. She was therefore admitted to the Orange Base Hospital with a diagnosis of acute rheumatic fever, without cardiac involvement. Her treatment consisted of complete bed rest, a course of penicillin and soluble aspirin in a dosage of 75 grains per day. She remained on this régime until her final complication set in.

For the next 17 days she was apyrexial, her pulse rate remained about 70 per minute and her condition steadily improved. Her blood sedimentation rate had fallen to 36 mm. per hour by October 14, and 30 mm. per hour by October 24, and it was planned to send her home for further bed rest.

On the evening of October 28 she vomited several times and the aspirin treatment was suspended (there had been no premonitory symptoms of salicylate overdosage). Small doses of promazine given intramuscularly controlled the vomiting.

During the afternoon of October 29 she became emotionally upset during visiting hours and begged her parents not to leave her. In the next three hours she became stuporose, incontinent of fæces, and vomiting recurred. Her temperature rose to 99·6° F. On examination, she was seen to be stuporose and irritable, but there were no localizing neurological signs and no neck rigidity. The diagnosis was in doubt and a course was begun of chloromycetin, 0·5 gramme being given intramuscularly every six hours.

On October 30 the patient was deeply comatose and did not react to painful stimuli. Her pupils were equal, central and widely dilated, and her optic fundi appeared normal. Her pupillary and deep tendon reflexes were very sluggish, and a flexor plantar response was elicited. There was no neck stiffness, and her muscle tone was very poor. The temperature had risen to 101·6° F. Intragastric feeding was begun and the urinary output was maintained at a satisfactory level. A lumbar puncture revealed crystal-clear fluid under normal pressure with no abnormal cells present.

During the afternoon a nurse observed a short-lived fit, and at 6 p.m. the patient had a major seizure, which was terminated by a small intravenous injection of thiopentone. She was then given hydrocortisone intravenously, and later

intramuscularly, together with soluble phenobarbitone. Her general condition deteriorated gradually without further fits, or the development of localizing signs or neck rigidity. She died on October 31 at 5 a.m.—that is, 60 hours after the onset of the vomiting, and 36 hours after she had become stuporose. Her temperature had never risen above 102·6° F.

Autopsy Report.

At autopsy the heart and viscera were quite normal and the brain was also macroscopically normal. There were no gross changes in the cerebral vessels. Sections taken from both cerebral and cerebellar hemispheres were submitted for examination to the Institute of Pathology at the Lidcombe State Hospital, and no abnormality was detected either on histological examination or when the sections were examined for viruses. Fæcal samples were also examined and yielded no abnormal findings.

Discussion.

No mention is made in modern standard texts of this complication of acute rheumatic fever. Osler discusses cerebral rheumatism briefly under two headings, namely: (i) delirium—this complication occurred in only five of 360 cases, of which four were thought to be due to salicylate therapy; (ii) coma — often associated with hyperpyrexia, and of serious import. This condition may occur during the acute attack of rheumatic fever or after convalescence has begun.

Stacey and Kaye reported a case of acute rheumatic fever with associated aseptic meningitis in 1954.

Nyman discusses the frequency of electroencephalographic changes in acute rheumatic fever. He concludes that "general and local changes in the brain often form part of the acute rheumatic process, even without a clinical picture of rheumatic brain disorder or chorea". In the same article he quotes Bruetsch, who discovered a "considerable proportion" of chronic cerebral vascular changes along with valvular disease in psychotic patients who came to autopsy. He maintains that "various mental and neurological disorders should be attributed to rheumatic fever, or, rather, its chronic sequelæ". This opinion has been supported by the psychiatrists Bumke, Bleuler and Sjobring. Costero states: "Certain diffuse cerebral changes (œdema, diapedetic hæmorrhages, and microglial changes) are said to accompany acute rheumatic fever constantly. A knowledge of these changes is essential to the understanding of the anatomic picture of rheumatic fever."

Tidwell states that: "The invasion of the central nervous system is so explosive as to produce signs and symptoms of severe meningeal irritation, and as a consequence the term 'Encephalitis Rheumatica' has been suggested. The spinal fluid is usually normal, and because of the paucity of material there has been no unanimity of opinion as to the classical pathological picture, other than that commonly associated with the general term Meningoencephalitis." He quotes Whitman, who reported psychiatric sequelæ of acute rheumatic fever and considered this disease in the ætiology of convulsions. He states that the psychotic manifestations may resemble any psychosis, and that a thorough history-taking may be necessary to disclose a causal relationship.

In the patient presented certain features resemble those described by Osler—for example, the fulminating cerebral episode occurring at a time when the patient was apparently recovering. However, it is noted that there was no hyperpyrexia. The patient's final illness was not influenced by antibiotic or steroid therapy. At autopsy the findings were singularly unhelpful.

It is interesting to consider that if the earlier classical story of acute rheumatic fever had not been available, and if the patient had been first seen in the stuporose state, the final diagnosis might have been "acute encephalitis of unknown ætiology".

Summary.

A case is described of a patient suffering from acute rheumatic fever without carditis, who appeared to be recovering until the sudden onset of a cerebral episode which proved fatal within 60 hours. The manifestations of cerebral rheumatism are briefly discussed.

References.

NYMAN, G. E. (1954), "E.E.G. in Rheumatic Fever", *Acta med. scand.*, 149: 128.

OSLER, W., and MCCRAE, T. (1924), "The Principles and Practice of Medicine", Ninth Edition, Appleton, New York.

STACEY, C. H., and KAYE, M. (1954), "Acute Rheumatic Fever with Associated Meningitis", *Canad. med. Ass. J.*, 71: 607.

TIDWELL, R. (1958), "Complications of Rheumatic Fever", *Amer. J. Cardiol.*, 1: 464.

Reviews.

Acute Pericarditis. By David H. Spodick, M.D.; 1959. New York and London: Grune & Stratton, Incorporated. 5¼" × 8¼", pp. 192, with many illustrations. Price: $6.50.

THIS monograph consists of 182 pages, of which 20 are occupied by bibliography and 10 by index. This seems to set the pattern of a book in which the author shows that he has read widely of the literature on the subject, but alas, not critically. Supporting a single statement that the "pericardium is inextensible", three references are given—1898, 1929 and 1947. Yet it would seem that in the present era of open-heart surgery a truer assessment could come from modern open-heart surgical experiences.

An article based on animal observation is the basis of the statement that before signs of compression are detectable, human pericardium can take 80 to 100 cc. of fluid. Autopsy evidence is brought forth to support a view that more fluid is required to increase pericardial pressure in people who have pericarditis than in "normals". This uncritical attitude results in a sense of unreality and uncertainty. Commonplace observations, such as the incidence of pain in pericarditis, are backed by the references to the literature, but omit personal experience. "Pain is the cardinal symptom but may be absent in half the cases" (references 54, 148, 264). "Pain may exacerbate with the taking of bloodpressure." Reference to the literature to support commonplace observations leave one uncertain of what in fact is the author's personal experience. In this too great readiness to accept the word of others, one cannot help feeling that the intravenous use of 50 ml. of carbon dioxide to be trapped in the auricle as a diagnostic radiological aid in pericardial effusion is risky, and should be accepted in a monograph only if supported by the author's personal confirmation of its safety.

Classifications are equally unrealistic and unclinical. In the ætiology of acute pericarditis comes scleroderma, rheumatoid arthritis, ankylosing spondylitis, diseases of adjacent structures such as dissecting aneurysm, neoplasia, leukæmia, etc. No clear clinical picture is given of the relative importance of each condition, and there is no reference to disease as one sees it at the bedside. Even idiopathic pericarditis is given a special account, yet surely its only claim is its unknown cause. The electrocardiogram takes precedence over the clinical assessment, and the observation is made that the "enthusiastic use of the electrocardiogram should have the best diagnostic luck". So a nice clinical picture of the change in rheumatic fever with the onset of pericarditis is omitted.

Some sections of the book provide useful information. The fibrinogen polymerization test may be worthy of attention, although it still receives no support by reference to the author's experience with the test. The diagram on page 48 illustrating the circulatory events in cardiac compression is too complicated, but that on page 57 is excellent, and effectively imparts its message.

A list of eponyms dogmatically make the claim that certain names are attached to certain findings; yet many have a very slender claim to the signs described.

In general, one expects a monograph to be an account of the author's personal experiences and references to literature to act as a supplement to this. When the reverse is true, the picture becomes thin and shaky. Few clear clinical pictures are given, and classifications lack balance and proper orientation. The section on radiological diagnosis

is perhaps the most valuable contribution; but our impression is that this book adds only to the bulk rather than to the knowledge of pericarditis.

Modern Nutrition in Health and Disease: Dietotherapy. Edited by Michael G. Wohl, M.D., and Robert S. Goodhart, M.D., with 59 contributors; second edition; 1960. Philadelphia: Lea & Febiger, Limited. Sydney: Angus & Robertson, Limited. 9½" × 6", pp. 1152, with 75 illustrations and 154 tables. Price: £10 3s. 6d.

THIS edition of this book is a far call from the original Wohl's dietotherapy, and an appreciable enlargement on the first edition of the book in its present form, which appeared five years ago. From being a text on the dietary management of various diseases, it has become a treatise on human nutrition with dietotherapy occupying the minor place. As with most books of multiple authorship (there were 59 contributors), there is considerable variation in the quality and depth of the text; but in general the standard is high.

The book is divided into three parts, "Normal Nutrition", "Nutrition in Disease", and "Nutrition in Periods of Physiological Stress". The first part is the most erudite and comprehensive, and contains excellent chapters on hunger and appetite, the antimetabolites and the addition of chemical and other additives to food. Most of the remainder of this part is devoted to the role of the various nutrients in human nutrition, and a number of references are made to animal experimental work. The role of the nutrients in physiology is presented in detail, in some instances with the assumption that the reader has an expert's knowledge of biochemistry. The section on food additives is a useful introduction to this subject; but more emphasis might have been given to the possible dangers here, and not so much reliance placed on the safeguards offered by the Food and Drugs Administration of the U.S.A.

"Nutrition in Disease" commences with a chapter on an adequate diet, and here it is evident that this book was written predominantly for the American market. The present American diet is deemed adequate; no regard is paid to the fact that Americans could enjoy adequate nutrition on a much less luxurious diet. A good attempt is made to reconcile the mass of information on the relationship of nutrition to infection in both natural and acquired resistance to diseases. The authors of these two chapters rightly do not attempt conclusions at this stage of our knowledge.

It is difficult to comment upon the 350 pages on nutrition in relation to the various diseases. This part of the book is patchy, as is to be expected, for some conditions call for highly specialized knowledge of food and good menu planning (for example, diabetes), while other conditions do not demand such a high level of knowledge (for example, diseases of the skin). This section of the book adds considerably to the bulk, and could in parts undoubtedly be reduced without seriously affecting the value of the text. The chapters in the third part dealing with nutrition of pregnancy, infancy, adolescence, are the least impressive. It is not easy to decide the standard of the reader for whom this book is now intended. It is a treatise on nutrition, obviously too extensive and, incidentally, too expensive to be more than a reference book for medical students and the general practitioner; but as such it should be in the library of each large hospital. The physician who takes more than a passing interest in the dietary management of his patients will find this both a guide to dietotherapy and a useful text on human nutrition.

Books Received.

[The mention of a book in this column does not imply that no review will appear in a subsequent issue.]

"Importance of the Vitreous Body in Retina Surgery with Special Emphasis on Reoperations", second Conference of the Retina Foundation, May 30 and 31, 1958, edited by Charles L. Schepens, M.D.; 1960. St. Louis: The C. V. Mosby Company. Sydney: W. Ramsay (Surgical) N.S.W. Ltd. 9¾" × 6¾", pp. 226 with illustrations. Price: £8 5s.

"The Surgical Clinic of North America, Volume 41, Number 1: Common Operations: Refinements in Technique", by John Van Prohaska, M.D.; 1961. Philadelphia & London: W. B. Saunders Company. Sydney: W. Ramsay (Surgical) N.S.W. Ltd. 9" × 6", pp. 264, with illustrations. Price: £8 2s. 6d. per annum.

"The Surgical Clinics of North America: Recent Advances in Surgical Research and Their Clinical Applications", Volume 40, Number 6, edited by I. S. Ravdin, M.D.; 1960. Philadelphia, London: W. B. Saunders Company. Sydney: W. Ramsay (Surgical) N.S.W. Ltd. 9" × 6", pp. 210, with illustrations. Price: £8 2s. 6d. per annum.

"Pediatric Clinics of North America, Volume 8, No. 1: Symposium on Office Practice and Procedures", edited by A. J. Steigman, M.D., and K. Hammond, M.D.; 1961. Philadelphia, London: W. B. Saunders Company. Sydney: W. Ramsay (Surgical) N.S.W. Ltd. 9" × 6", pp. 420, with illustrations. Price: £6 15s. per annum. (English).

"Instructional Course Lectures, Volume 17", by the American Academy of Orthopædic Surgeons, edited by Fred C. Reynolds, M.D.; 1960. St. Louis: The C. V. Mosby Company. Chippendale, Sydney: W. Ramsay (Surgical) N.S.W. Ltd. 10¾" × 8½", pp. 420, with many illustrations. Price: £10 3s. 6d.

"Evoluzione Dei Disturbi Cerebrali Di Origine Circolatoria", by Carlo Berlucchi; 1961. Pisa: Omnia Medica. 9¾" × 6¾", pp. 280. Price not stated.

"Vitamin C: Annals of the New York Academy of Sciences", Volume 92, Art. 1, edited by Franklin N. Furness, 1961. New York: The New York Academy of Sciences. 9" × 6", pp. 1-332. Price not stated.

"Art and the Scientist", by Geoffrey Lapage, M.A., M.Sc., M.D., M.Inst.Biol.; 1961. Bristol: John Wright & Sons Ltd. 9¾" × 7½", pp. 132, with many illustrations. Price: 42s. (English).

"The Clinical Application of Antibiotics: Volume II: Streptomycin and Other Antibiotics Active against Tuberculosis", by M. E. Florey, M.D.; 1961. London and Melbourne: Oxford University Press. 9¾" × 6", pp. 336, with illustrations. Price: 121s. (English).

"Common Diseases of the Ear, Nose and Throat", by Philip Reading, M.S. (Lond.), F.R.C.S. (Eng.); third edition; 1961. London: J. & A. Churchill Ltd. 8" × 5¼", pp. 264, with illustrations. Price: 24s. net (English).

"Toward the Conquest of Beriberi", by Robert R. Williams; 1961. Cambridge: Harvard University Press. London: Oxford University Press. 9¼" × 6", pp. 360. Price: 70s. 6d.

"Man and His Body: The Wonders of the Human Mechanism", by Benjamin F. Miller, M.D., and Ruth Goode; 1961. London: Victor Gollancz Ltd. 8½" × 5½", pp. 376. Price: 29s. 9d.

"Virus Meningo-Encephalitis: Ciba Foundation Study Group No. 7", edited by G. E. W. Wolstenholme, O.B.E., M.A., M.B., M.R.C.P., and Margaret P. Cameron, M.A.; 1961. London: J. & A. Churchill Ltd. 7¼" × 4¾", pp. 120. Price: 12s. 6d. net (English).

"Motor Examination of Peripheral Nerve Injuries", by Y. T. Oester, M.S., Ph.D., M.D., and J. H. Mayer, jr., M.D., F.A.C.S.; 1960. Springfield, Illinois: Charles C. Thomas. Oxford: Blackwell Scientific Publications Ltd. 10" × 6¾", pp. 88, with many illustrations. Price: 44s. (English).

"International Work in Health Statistics, 1948-1958", by H. S. Gear, M.D., Y. Biraud, M.D., and S. Swaroop, Ph.D., M.P.H.; 1961. Geneva: World Health Organization. 9½" × 7", pp. 56. Price: 3s. 6d. (English).

"Systematic Observation of Gross Human Behavior", by G. R. Pascal and W. O. Jenkins; 1961. New York, London: Grune & Stratton, Inc. 8½" × 5½", pp. 134. Price: $4.75.

"The Practical Management of Head Injuries", by John M. Potter, M.A., M.B., B.Chir. (Cantab.), F.R.C.S.; 1961. London: Lloyd-Luke (Medical Books) Ltd. 7¼" × 5¼", pp. 84. Price: 12s. (English).

"The Treatment of Hypertension", by Sir George W. Pickering, M.A., M.D., F.R.C.P., F.R.S., W. I. Cranston, M.D., M.R.C.P., and Michael A. Pears, M.D., M.R.C.P.; 1961. Springfield, Illinois: Charles C. Thomas; Oxford: Blackwell Scientific Publications. 9" × 6", pp. 176, with illustrations. Price: 56s. (English).

"Traumatic Lesions of Peripheral Vessels", by Carl W. Hughes, A.B., M.D., and Warner F. Bowes, A.B., B.Sc., M.D., M.S., Ph.D.; 1961. Springfield, Illinois: Charles C. Thomas; Oxford: Blackwell Scientific Publications. 9" × 6", pp. 208, with illustrations. Price: 64s. (English).

"Subnormal Personalities: Their Clinical Investigation and Assessment", by C. J. C. Earl, F.R.C.P.I., D.P.M., F.B.Ps.S.; 1961. London: Baillière, Tindall and Cox. 8¾" × 5½", pp. 338. Price: 30s. (English).

"Coronary Vasodilators", by R. Charlier; 1961. Oxford, London, New York, Paris: Pergamon Press. 9" × 6", pp. 220, with illustrations. Price: 55s. net (English).

"Baillière's Pocket Book of Ward Information", by Marjorie Houghton, M.B.E., S.R.N., S.C.M., D.N. (Lond.); tenth edition; 1961. London: Baillière, Tindall and Cox. 5¼" × 3¼", pp 218. Price: 6s. 6d. (English).

The Medical Journal of Australia

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COORDINATION OF MEDICAL RESEARCH.

AFTER the last meeting of the National Health and Medical Research Council the Minister for Health, Dr. Cameron, made it known that the Council was examining possible steps towards coordinating medical research in Australia, with a view to ensuring that funds which were available were spent to the best advantage. In a report to the Council the Medical Research Advisory Committee had stated that, having made a study of funds available for medical research from both Government and private resources and from public subscription, it felt that a useful purpose would be served if this information could be assembled in greater detail and made available to research bodies and organizations to assist the avoidance of undue overlapping of projects. The Committee suggested that as a first step a subcommittee should undertake discussions with the major research foundations to seek their views. The Council, at its meeting, endorsed the proposals of the committee. Dr. Cameron, who attended the opening of the Council's session, made reference to the problem. He said that there was a tendency to suggest that the Commonwealth should be doing more about medical research. "Research" seemed to have become something of a magic word, and many people seemed to feel that it did not matter how much money was spent on it. To a point that was true, but the Council might be able to play a very useful rôle if it could give a more balanced perspective to the question. The idea of coordinating research made an appeal to many minds, but often it was not understood how extraordinarily difficult it was to do this—to coordinate all the research work being done in universities, at hospitals, at research institutes, and in the Commonwealth Serum Laboratories and other laboratories. Clearly it was desirable and necessary to avoid pointless overlapping, but it would be very easy to have an excessive, restrictive form of coordination which would do more harm than good. Dr. Cameron believed, however, that there was scope for voluntary cooperation, which could well assist to avoid involuntary overlapping—the kind of unwitting duplication of research that no one wanted. The National Health and Medical Research Council, Dr. Cameron suggested, might be in an ideal position to encourage such an approach and to assist to make it effective.

We shall await with much interest the outcome of the National Health and Medical Research Council's exploration into this field. No one will deny the importance of avoiding blind overlapping of research, while at the same time acknowledging that duplication of research may be quite in order and sometimes is necessary. Our resources in money, facilities and, perhaps most of all, first-rate research workers are not unlimited, and we should make the most of what we have. A step in this direction is to make generally known what is being done in the various centres of research throughout Australia. Last year we made what was as much as anything a gesture in this respect by publishing a limited list of research projects. This was well received, and we were encouraged to attempt something more comprehensive. An approach was made to research institutes, grant-making bodies and various other interested groups in each State, with a request for information on current research projects. We hope that no one was left out who should have been approached. The response was remarkably good. Almost without exception those approached cooperated to the full, and the result is the substantial supplement in the present issue. It presents, so far as we have been able to gather it, a summary of medical research going on in Australia. It has involved a considerable amount of work and expense, and we should like to be sure of just how useful or otherwise it is before deciding what to do in future years. Comments, criticisms and suggestions are asked for. The list purports to be nothing more than a source of information for mutual and general benefit. The quality of the individual pieces of research is not assessed, and no one is expected to be impressed by the size of the list. But if the list proves useful, and if the continuation of something of the sort is favoured, we shall be glad to know.

THE NEW SOUTH WALES CANCER PATIENTS' ASSISTANCE FUND.

FOUR YEARS AGO a committee was formed in Sydney by Mrs. Harold Ham to work for the comfort of patients attending the radiotherapy departments at all the large hospitals in Sydney. It was named the New South Wales Cancer Patients' Assistance Fund. At first help was given to patients needing it, mainly by distribution of money through hospital almoners to patients who had to stay in outlying suburbs while they were receiving radiotherapy and who found it difficult to afford transport each day. Other activities of the committee have included the giving of annual donations to the hospitals at which radiotherapy is provided, the service of tea and biscuits to patients waiting for treatment, and help in providing transport for patients by drivers who act in an honorary capacity. However, the committee felt that this was not enough. The great problem was suitable accommodation—adapted to sick people and within their financial resources. Faced with this need the committee began working to buy a house for use as a hostel. This goal has now been achieved with the purchase of a house at Darling Point for £20,500 (a picture appears on page 237). Help for the purchase was given by the Department of Health through the Minister, the Honourable W. F. Sheahan,

and also a grant from the trustees of the R. T. Hall Trust. Many other individual people have given generous help.

The patients needing the hostel are mainly those from the country and from outer suburbs, and the committee naturally look for further assistance from these centres. It is pleasing to note that there are fund-raising groups working for the committee in a number of country centres, notably Orange, Gunnedah, Forbes, Berrima and Goulburn. The committee would welcome assistance from any individuals or groups who are able to give it, whether in city or country. We feel that this should make a special appeal to those in country centres, and offer it for the sympathetic attention of practitioners in country districts. Perhaps country local associations could take up the matter with their members, who might in turn arouse the interest of groups in their own communities.

Comments and Abstracts.

TESTICULAR TUMOURS.

As with any other group of pathological conditions, the production of figures to indicate the relative frequency and prognosis of different types of testicular tumours depends on the correlation of a large number of cases assessed on a comparable basis. It is for this reason that the larger American institutions, with their wealth of clinical material, start with such an advantage in work of this kind. A useful contribution towards the better understanding of the pathology of testicular tumours has been made by I. M. Thompson and four colleagues[1] who have assembled the clinical and pathological records of 178 patients with testicular tumours seen at four different hospitals in Columbia and Ann Arbor during the past 20 years, and discuss their results. These authors state that the major problem in such a survey is the continuing difficulty of achieving precise histological categorization. Pathologists may differ quite widely in classifying a given neoplasm. It has become apparent that very few of these tumours can be considered as completely "pure". This may be a problem impossible of resolution because of the totipotency of the germinal cells, from which these neoplasms arise. Thus, in a neoplasm that is for the most part seminoma, certain areas may suggest teratoma, embryonal carcinoma or even chorioepithelioma. However, despite this fact, the tumours in this series have generally been classified according to the nature of the bulk of the tumour. Of the 178 tumours, 75 were classified as seminoma, 42 as embryonal carcinoma and 58 under the heading of teratoma, which would include adult teratoma and teratocarcinoma. Choriocarcinoma, if present in amounts sufficient to justify such a diagnosis, is a highly malignant and somewhat different tumour from other teratomas, and a subheading can be made for the nine choriocarcinomas which have been included among the 58 teratomas. The preponderance of tumours on the right side (112 to 65) in this series is probably of no real significance. Thompson and his colleagues are appalled at the long average duration of symptoms and signs before specialized medical help is sought. The average period of delay in their series was 20 months. In 83% of these patients, symptoms were present for one or more months before diagnosis was made. This delay was partly occasioned by wrong diagnosis and treatment on a non-neoplastic basis; in this series this applied in about one-third of all cases. The common misdiagnoses were epididymo-orchitis, hydrocele, trauma, hernia and so on. Thompson and his colleagues urge the wisdom of following up inflammatory conditions of the testis very closely. They state that the relationship of cryptorchidism to the development of testicular neoplasms has not been solved, but that there appears to be a definite statistical increase in the number of tumours found in such patients. In this series 8% of the tumours occurred in cryptorchids. The oldest patient was 78 years old, the youngest 13 days; the average age was 37 years. Seminoma occurred more frequently in the older age groups, and embryonal carcinoma and choriocarcinoma more frequently in the youngest patients. Of the 178 patients, 120 presented with a scrotal mass; this was painless in 62, but there were varying degrees of pain in 58. Patients with advanced metastases presented with back pain, abdominal pain or fatigue. About 20% of patients were found to have metastases on admission to hospital as evidenced either by physical findings, chest X-ray or urographic study. Of these 34 patients, seven had choriocarcinoma and all are dead; 11 had seminomas, and six are alive four to 15 years later; nine had teratomas, and seven are dead and two alive, but with active neoplasia for two and three years respectively; seven had embryonal carcinomas, and all are dead. These findings reemphasize the fact that chorioepithelioma will rarely present itself prior to the occurrence of distant metastases, and is resistant to standard forms of therapy. In contradistinction, the seminoma is so sensitive to radiation that a high percentage may be held in control for many years with one or more courses of radiation. Of the whole series, 136 patients had been followed for five or more years; the five-year survival rate was 52%. The breakdown was as follows: seminoma, 38 survivors out of 59 (65%); teratoma, 18 survivors out of 44 (51%); embryonal carcinoma, 14 survivors out of 32 (44%).

Occasionally the metastases from teratomas or embryonal carcinomas may respond well to radiation; this suggests that these tumours may metastasize in a more radiosensitive form (e.g., seminoma). It is possible that undetectable small areas in the primary tumour of different nature from the bulk of a growth, may cause such metastases. It would appear that, irrespective of the actual mechanism of the seeming metamorphosis, the possibility of metastases differing from the primary growth must be considered. Thompson and his colleagues therefore consider that radiation therapy, gland dissection and other ablative measures should be applied with more vigour than in the past.

[1] *J. Urol. (Baltimore)*, 1961, 85: 173 (February).

JOINT FAO/WHO STUDY ON DANGER OF FOOD ADDITIVES.

A NUMBER of natural and synthetic compounds used to preserve foods can be dangerous in the long run when taken in large quantities. They include such ordinary substances as citric and ascorbic acids, which have the added properties of improving flavour and food value of fruit juices. The task of determining the amount of certain of these compounds that can be consumed daily without harmful effects has just been completed by a Joint FAO/WHO Expert Committee on Food Additives, a highly technical study undertaken for the first time on an international basis. Earlier meetings of this Joint Committee, concerned with more general aspects of the problem, had stressed the need for an evaluation of the toxicological risks in the use of food additives. They recommended that a beginning be made on the biological properties of a number of substances used as antimicrobials and antioxidants—chosen because they are widely used to prevent wastage, especially in tropical countries where heat destroys the keeping qualities of many foods.

This meeting of the Committee prepared a monograph on each of the 35 antimicrobials and antioxidants under review, based on the information available from every possible source. These probably will be published in the WHO Technical Report Series and should prove to be especially useful in the developing countries to help officials and technicians who are framing and applying laws and regulations for the protection of the public.

However, these monographs are intended for guidance only. Throughout the eight days of the discussions, it was constantly stated that each country ultimately would have to find its own solution to the problem of any particular food additive, because conditions of life, food habits and dietary patterns vary greatly. But the Committee believed that baby foods should be prepared without food additives at all, if possible. The mature person is usually equipped with detoxicating mechanisms that are not yet fully developed in a baby, with the result that the risk of poisoning through the indiscriminate use of food preservatives is much greater.

The Committee noted the serious lack of trained pathologists and toxicologists capable of carrying out the necessary investigations to ensure progress in this field, and recommended that FAO and WHO encourage the establishment of more adequate training facilities. It also considered that work should continue in evaluating the risks involved in the use of emulsifiers, stabilizers and similar substances added to many foods, and should be extended to include antibiotics, food colours, etc.

HYPNOTIC SUGGESTION FOR PAIN RELIEF IN MALIGNANT DISEASE.

THE relief of severe or intractable pain is a problem that is always with us. Drugs may cause unpleasant side effects besides leading sometimes to tolerance or addiction; surgery to relieve pain has its complications and failures; subarachnoid alcohol block, although often giving complete but only temporary relief, carries serious risks such as paresis or incontinence. In the search for a non-surgical method of relieving pain and reducing the need for narcotics, combined with safety, many doctors from time to time have tried the effects of hypnosis. Vincent Cangello[1] reports on a series of 22 patients for whom hypnotic suggestion was used to relieve pain or to increase the threshold for pain. All of these patients were having narcotics every four hours, so that "a mathematical comparison of the amount of narcotic agent used before and after the application of hypnotic suggestions could be made in order to evaluate the efficiency" of the treatment. The method adopted is briefly described; it was not persisted in if three visits of one hour each proved unsatisfactory. Thirteen of the 22 patients made fewer requests for narcotics after the use of hypnotic induction and suggestion. Four patients asked for no more narcotics at all. Nine patients received no benefit, except for two who said that they were completely free of pain only while in the hypnotic state. Cangello concludes that the results show there is a place for hypnotic suggestion to relieve pain in patients with malignant disease. "It proved to be sufficiently successful in some cases, not unduly time consuming, and free of complications or morbidity. . . . It should be given a trial before chemical rhizotomy or surgical tractotomy is resorted to. It is especially indicated for the patient whose life expectancy is short or who is not suitable for the chemical or surgical approach. . . . None of the patients who were successfully induced ever required more extensive procedures for pain relief." The article concludes with some useful references.

SURGERY FOR CORONARY DISEASE.

THE importance of improving the circulation to the myocardium of the patient with coronary artery insufficiency is vividly shown by the prognosis of those who have survived a first attack; most of these people die in new coronary attacks, and only a relatively few die of other diseases. Pointing this out Clarence Crafoord[2] of Stockholm gives a clinical review of surgical attempts to assist such patients. He states that autopsy studies show that there is an increase in intercoronary anastomoses after severe coronary obstruction, and many surgical procedures have aimed at helping this natural tendency to increase the blood supply to the myocardium. The surgical methods are listed in a table under four main headings, namely, (i) to produce extracardial revascularization, (ii) to reduce metabolic processes, (iii) to allay symptoms by neurosurgery and (iv) to operate directly on the coronary vessels. Beck's operation of abrading the parietal and visceral pericardial surfaces and the introduction of talc-asbestos is the simplest and apparently the best method of increasing the blood supply to the myocardium. The operations under headings (ii) and (iii) are "now more of historical than current interest". Direct operations on the coronary vessels (heading iv) are still largely experimental. Some details are given about one patient, aged 55 years, in whom an autogenous patch graft from the great saphenous vein was sutured into an incision made in the diseased artery, so that the lumen of the artery was increased. The operation was done under the by-pass technique and hypothermia. The patient made a good immediate recovery and has been under observation for eight months. His working capacity has increased, and his electrocardiogram has improved. Crafoord concludes that "this method of operation is to be recommended for further trial".

[1] *Internat. J. Clin. & Exp. Hypnosis*, January, 1961.
[2] *Surgery*, 1961, 49: 215 (February).

ALCOHOLISM AND TRAFFIC ACCIDENTS IN EUROPE.

IN two short notes in its section "Medicine throughout the World", *La Presse médicale*[1] records the following observations relating chiefly to alcoholism, but also to traffic accidents.

The Economic Commission for Europe blames alcohol for one-third of its traffic accidents. That is to say, out of 60,000 accidents that occur annually, 20,000 are due to inattention caused by the consumption of alcohol. Of the victims, 45% are cyclists or motor-cyclists and 25% are pedestrians. The writer in *La Presse médicale* carries these observations to their logical conclusion by pointing out that in Europe it is obviously 100 times more dangerous to travel one kilometre on a motor-cycle than it is to travel 100 kilometres by air.

The author also draws a distinction between two types of drinkers. The first are the excessive drinkers, who provide a sizeable contingent of alcoholics. In terms of the daily amount of wine they consume, 20% drink 1 to 2 litres and 7% drink more than 2 litres. In France, this makes a total of about 4,500,000 alcoholics. The second type are psychiatric drinkers. Their numbers are growing apace. They are the people who have to take only a small amount of alcohol to fall into behaviour disorders. This is the new side to alcoholism, of interest to the psychiatrist and the sociologist. This "factorialization" of alcoholism is a generalized phenomenon all over the world, and one of the bad sociological bargains of modern civilization. Viewed in this perspective, alcoholism is seen as a disease of society, which can be cured and avoided only by a suitable framing of the external environment.

SHORTER ABSTRACTS.

DERMATOLOGY.

THE CARE OF THE SKIN OF THE NEWBORN. E. A. Fairburn, *Practitioner*, 1961, 186: 194-199 (February).

THE author discusses routine care of the neonatal skin, and treatment of ichthyosis, epidermolysis bullosa, nævi,

[1] *Presse méd.*, 1961, 69: 1060 (May 13).

thermal derangements, skin infections, eczema, seborrhœic dermatitis and napkin rashes in early infancy. Ritualistic cleansing should be reduced to a minimum. So far as practicable the vernix caseosa should be left to dissipate naturally. The routine incorporation of antibacterial agents in toilet preparations is superfluous and possibly harmful. Every trace of soap should be washed off with plain water, special attention being given to the flexures. The skin should be dabbed, not scrubbed, and dried with a soft towel. Boric acid should be omitted from baby powders. Clothing should be light, soft and non-occlusive. For ichthyosis emulsifying ointment, B.P., is helpful as a bath emollient. The management of epidermolysis bullosa consists of measures guarding against mechanical injury. As regards nævi, the author considers that most simple ones undergo spontaneous regression. Thermally induced hyperidrosis is commonly encountered as a result of a maternal tendency to overclothing. Skin infections are prone to appear as superficial coccal infections, and may assume the characters of impetigo contagiosa. Every case in hospital should be isolated, and 0·5% neomycin ointment applied to the lesions three times a day. Kaposi's varicelliform eruption is occasionally encountered. Eczema presents in early infancy as ill-defined areas of erythema and desquamation; exogenous primary irritation plays a leading causative rôle, and topical therapy is best confined to simple bland preparations. Mercurial compounds should not be prescribed. Localized reactions are most efficiently controlled by the topical application of corticosteroids such as 0·5% hydrocortisone cream. In seborrhœic dermatitis, a simple affection of the scalp can usually be controlled by 1% precipitated sulphur and salicyclic acid in hydrous emulsifying ointment, B.P., applied at night and washed off the following morning. More severe rashes can be treated by 3% "Vioform" and 1% hydrocortisone. Napkin rash, if severe, can be controlled with antibiotic creams, especially if primarily infective in origin. Occasionally frank monilial infection becomes established; for this twice daily paintings with 0·5% aqueous solution of crystal violet can be used; alternatively, nystatin ointment may be applied. Later, when the infective process has subsided, the use of a hexachlorophene dusting powder may be helpful.

INJECTABLE PROMETHAZINE FOR LOCAL ANÆSTHESIA. L. Metzer, *Arch. Derm.*, 1960, 82: 264-265 (August).

THE author reports that he has used an antihistamine, promethazine hydrochloride, intradermally or subcutaneously as a local anæsthetic on 33 patients. Œdema and erythema occurred in two. He states that this substance may be added to the list of alternative anæsthetics for those patients who have proved or suspected hypersensitivity to derivatives of para-amino-benzoic acid.

LOCAL INJECTION OF STEROIDS AND HAIR REGROWTH IN ALOPECIAS. N. Orentreich *et alii*, *Arch. Derm.*, 1960, 82: 894-902 (December).

THE authors state that hair growth in response to steroid injection was observed exclusively in patients with alopecia areata, alopecia totalis, and alopecia universalis. All other types of alopecia failed to respond. Treatment by injection into the diseased sites was successful in all but two patients provided that appropriate steroid compounds were used. In the alopecia areata group, hair regrowth appeared approximately 3 to 4 weeks after the steroid injection. The hair was lost again about 6 to 9 months after a single injection. The more insoluble the steroid preparation, the more effective it was in producing hair growth. The most successful preparations were the insoluble forms of prednisolone, hydrocortisone and fludrocortisone.

NECROBIASIS LIPOIDICA GRANULOMATOSUS. T. G. Rollins and R. K. Winkelmann, *Arch. Derm.*, 1960, 82: 537-543 (October).

THE authors present a clinical and histological review of 89 cases previously diagnosed at the Mayo Clinic as necrobiosis lipoidica diabeticorum (N.L.D.) in the twenty-year period ending in 1955. Clinically the condition appeared identical in diabetic and non-diabetic patients. However, 93% of the 29 non-diabetic patients were females, contrasting with 57% among the 60 diabetics; and the age of onset averaged 38 years among the non-diabetics, contrasting with 28 years among the diabetics. Histologically, this disease in diabetics and non-diabetics was different. In the non-diabetic patient, it appears similar to or identical with Miescher's granulomatosus disciformis chronica et progressiva. The histology in the diabetic patients was consistent in all instances with prior descriptions of N.L.D. All 29 patients diagnosed as non-diabetic had normal cencentrations of sugar in blood and urine, and diabetes has not been known to develop in any of them since. The authors suggest that this clinical entity in the non-diabetic be called necrobiosis lipoidica granulomatosus (N.L.G.), a name suggesting its similarity to N.L.D., but also indicating its different pathology.

THE EFFECT OF CHEMICAL CAUTERANTS ON AGING SKIN. S. Ayres III, *Arch. Derm.*, 1960, 82: 578-585 (October).

THE author states that though liquid phenol is absorbed from the intact skin, if the amount applied at a given session is carefully restricted and subsequent applications are not too frequent, it is practicable to use it as a chemical cauterant in order to destroy the epidermis and uppermost layer of the dermis, with subsequent regrowth of new epidermis, followed by the formation of new dermal connective tissue just beneath the epidermis. After liquid phenol application to senile skin of the postero-lateral aspect of the neck which showed marked actinic changes, the collagen of the upper dermis, which had shown severe basophilic degeneration before treatment, was replaced by a relatively broad zone of new, normally staining collagen. Clinically, the treated skin was much more youthful in appearance and elastic to palpation, as compared with adjacent untreated skin. These changes still persisted more than two years after phenol application. The clinical and histological changes which follow phenol application to the face and neck closely parallel those after dermabrasion. The application of liquid phenol to face and neck (limited areas at a time being treated) is effective in lessening wrinkles and actinic skin changes, either when used alone or as an adjunct to dermabrasion.

It appears to have some value as a prophylactic measure against skin cancer and precancer. Trichloroacetic acid produces similar but more intense destructive effects, and can be used only for small areas in which the skin is thick. It has been found that a concentration of 25% to 50% trichloroacetic acid produces a cauterant effect roughly comparable to that of pure phenol. In describing the technique used, the author states that the liquid phenol is applied on a cotton applicator, blotted partly dry, and that if the area is immediately wiped with either water or alcohol the cauterant effect of phenol is somewhat lessened.

EDATHAMIL IN THE TREATMENT OF SCLERODERMA AND CALCINOSIS CUTIS. P. R. Winder and A. C. Curtis, *Arch. Derm.*, 1960, 82: 732-736 (November).

THE authors report the treatment of 27 patients with scleroderma or calcinosis cutis with edathamil disodium. The patients' ages varied from 7 to 75 years. All were hospitalized during treatment and received daily physical therapy. Edathamil disodium was administered intravenously over a period of 4 to 6 hours, during which time the vital signs were carefully observed. Throughout this study complete blood and urine examinations were performed at intervals. Edathamil seemed most useful in cases of acrosclerosis. The author states that edathamil is a relatively safe drug to use, but that renal irritation should be guarded against. Patients aged 14 to 75 years received 2·5 to 3 grammes of edathamil in 500 ml. of 5% dextrose solution every day for 15 days. All the patients 14 years old and older received orally pyridoxine 50 mg. four times daily and nicotinamide 100 mg. four times daily.

PEMPHIGUS FOLIACEUS. H. O. Perry, *Arch. Derm.*, 1961, 83: 52-70 (January).

THE author reviews the cases of 16 patients diagnosed as having pemphigus erythematodes and 39 patients with pemphigus foliaceus. Biopsy showed no significant differences between the two. The gross morphopathology, histopathological findings, clinical course and therapeutic responses in both groups of patients were so similar that it appears best to include all these patients in the diagnostic category of pemphigus foliaceus. Corticosteroids and adrenocorticotrophic hormones afford excellent suppressive treatment of pemphigus foliaceus. Administration of these hormones must be maintained over a long period, but only at a dose sufficient to suppress the major cutaneous reactions. Persistence of some verrucous and scaling lesions, and the appearance of an occasional blister should not constitute indications for larger doses. Results of treatment with antimalarial agents in 10 patients indicate that,

although not universally disappointing, they are only of occasional benefit.

LYMPHOSARCOMA OF THE SKIN AND TESTIS. J. Altman and R. K. Winkelmann, *Arch. Derm.*, 1960, 82: 943-947 (December).

THE authors report a case of reticulum-cell sarcoma involving the skin and testis. Records of 14 patients in whom the diagnosis of testicular lymphosarcoma had been made are reviewed; five were found to have associated cutaneous lesions of lymphosarcoma. In all cases there was evidence of systemic lymphatic involvement which became more prominent as the disease progressed. The authors state that the association of purple-red nodular or ulcerated cutaneous lesions with enlargement of one or both testes represents a helpful clinical sign in establishment of the diagnosis of malignant lymphoma.

UROLOGY.

URETERAL REIMPLANTATION AND BLADDER NECK RECONSTRUCTION. G. W. Leadbetter and W. F. Leadbetter, *J. Amer. med. Ass.*, 1961, 175: 349-353 (February 4).

THE authors publish their results in four and a half years' surgical treatment of 35 children with vesico-ureteric reflux and bladder neck obstruction. In 28 of these patients ureteroneocystostomy was carried out, many of the procedures being bilateral. Reconstruction of the bladder neck was done 20 times for obstruction. Good clinical results, namely elimination of residual urine and pyuria, were obtained in 31 out of the 35 patients. The few failures were ascribed to inherent myogenic or neurogenic difficulties. When there is evidence of severe renal damage or of underlying neurogenic dysfunction, the authors recommend ileal loop diversion rather than the foregoing types of reconstructive surgery. In some cases, where bladder neck obstruction and ureteric reflux are associated with normal-appearing ureteric orifices, removal of the bladder neck obstruction may relieve the regurgitation; but, if the ureteric orifices are wide and gaping and run straight through the bladder wall instead of obliquely, then uretero-neocystostomy is necessary for a successful result. The patients in this series were young, most of them being children.

RADIOTHERAPY OF BLADDER CARCINOMA. E. A. Langdon and J. J. Stein, *J. Urol.* (*Baltimore*), 1961, 85: 159-162 (February).

THE authors present the results of their experience in the radiotherapy of 99 cases of high grade carcinoma of the bladder wall, of the deeply penetrating type. The treatments were given between the beginning of 1956 and the end of 1959. Conventional X-ray therapy (200 to 250 Kv. energy) has not been very effective in this disease, and the side-effects were most distressing. With the advent of higher energies, supervoltage and megavoltage therapy have achieved better results and less severe side effects. The authors' experience has been with external radiation, using cobalt-60 at 75 cm. distance. They gave a tumour dose of 5000*r* or more to all patients when a cure was attempted, and approximately 3000*r* to those in whom only palliation was indicated. The authors complain that many of the patients had had surgical and fulguration procedures, and that much time had elapsed before they were sent for radiotherapy. Patients with very extensive bladder carcinoma and secondary renal disease are poor subjects for radiotherapy. From their own results, they think that high grade infiltrating carcinomas will be greatly benefited, and a moderate number cured, by supervoltage therapy. It is noted that many of the later patients in the series had been received earlier in the disease, and were in better general condition; the results in these are much more promising.

SURGICAL TREATMENT OF MULTIPLE, RECURRENT BRANCHED RENAL CALCULI TREATED BY PYELO-NEPHRO-ILEO-VESICAL ANASTOMOSIS. W. E. Goodwin and A. T. K. Cickett, *J. Urol.* (*Baltimore*), 1961, 85: 214-222 (March).

THE authors discuss the difficult problem of recurrent, staghorn renal calculi. They think that obstruction, either in the ureter or at the uretero-pelvic junction, plays an important part. Higgins in 1939 found obstruction in nearly three quarters of all patients with recurrent calculi. Removal of all calculi often does not prevent recurrence. When the disease is bilateral it is well recognized that nephrectomy is contraindicated. If it is determined that obstruction is an important factor, with consequent infection, it was thought by the authors that recurrence might be prevented by providing large-calibre drainage right down into the bladder, with the use of a long, isolated loop of ileum. Even if stones did recur, they could pass into the bladder easily through such a wide duct. The authors describe the genesis of this idea. In 1957 they saw a 16-years-old boy with a solitary left kidney, and an obligatory nephrostomy tube, because of upper ureteric damage. There were numerous seed-like calculi in a lower calyx and infection was present. Substitution of the ureter by an ileal loop achieved an excellent result, with suppression of nephrostomy drainage and disappearance of the calculi. The patient is in good health three and a half years after operation. As criteria for use of the operation, a patient with a history of recurrent renal calculi should be in good general condition and have fair renal function in the concerned kidney, with normal blood chemistry. As part of the technique, most of the pelvis is resected and the lower medial surface of the kidney is opened right down to the lowest calyx, so that properly dependent drainage of the pelvis and lower system of calyces is provided. Mucosa-to-mucosa anastomosis is made when suturing the split and spatulate upper end of the ileal loop to the calyceo-pelvic structures. In addition to the boy whose case has already been mentioned, the procedure has been used with good results in three patients with multiple, recurrent calculi, one with a solitary kidney. The authors consider that these results justify cautious optimism as to its value.

DIFFERENTIATION OF HYPERPARATHYROIDISM AND OTHER DISEASES ASSOCIATED WITH RECURRENT URINARY CALCULI. W. H. Boyce and H. H. Bradshaw, *J. Urol.* (*Baltimore*), 1961, 85: 223-232 (March).

IN this article the authors have made a study of 90 patients with rapidly recurrent renal calculi. This was done in the renal diagnostic unit of a metabolic ward. Primary hyperparathyroidism was found in 12%, various metabolic disorders in 16%, chronic urinary infections in 48% and idiopathic hypercalcinuria in 24%. The intravenous calcium load test, as described by Howard, Hopkins and Connor in 1952, has been the most valuable diagnostic aid in the differentiation of early hyperparathyroidism from other causes of renal calculus. The authors emphasize that all the data available from the patient response to this test should be utilized in interpretation of its diagnostic implications. Until such time as reliable methods of direct measurement of parathormone in body fluids become available the diagnosis of hyperparathyroidism remains subject to the clinical acumen of the physician.

BILATERAL SIDE-BY-SIDE CUTANEOUS URETEROSTOMY IN THE MIDLINE. R. Chute and R. L. Sallade, *J. Urol.* (*Baltimore*), 1961, 85: 280-283 (March).

FOR use in certain cases where urinary diversion is mandatory, the authors advocate a method of bilateral cutaneous ureterostomy, in which the two orifices are established in the midline (where the operative incision is made), about half-way between the umbilicus and the pubis. One orifice is immediately above the other. The patient must not be so obese that the ureters are too short to reach 1·5 cm. beyond skin level.

The authors state that at the present time many urological surgeons think that the uretero-ileostomy loop is the procedure of choice for urinary diversion, as it best conserves renal function with a minimum of hyperchloræmic acidosis and attacks of pyelonephritis, and also imposes a not-too-troublesome burden on the patient in the care of the collecting apparatus. However, in the case of a patient whose ureters are dilated, they consider that their method of direct bilateral skin implantation is probably superior to the ileal conduit. The urine from both kidneys is carried more immediately and physiologically to the surface where it is collected by a single, cemented ileostomy cup. In cases where the ureters are dilated renal function is likely to be impaired, and there is a possibility of hyperchloræmia acidosis by absorption even from an isolated ileal loop. Moreover, the whole operation, necessitating only one anastomosis (to the skin) is greatly simplified and shortened. This is very important in poor-risk patients. It is easy to avoid stenosis of the ureter at skin level by turning back the wall of the ureter to form a cuff before suturing its cut mucosal edge to the skin.

On The Periphery.

ALCHEMY: ITS THREE IMPORTANT TERMS AND THEIR SIGNIFICANCE.

A TYPICAL VOCABULARY arranges its terms according to the convenience of its user, or according to the alphabetical order of the language. Thus the word *Kimiya*, as used in Persian, and also by Firdousi, has been placed in his vocabulary by Wolff (1935) under "K". In Arabic its proper form is *Al-Kimiya*; hence the "Encyclopedia of Islam" (1928) assigns it a much earlier place, under words beginning with "A". It is evident that to the alchemist, speaking Persian or Arabic, the importance attached to *Kimiya* and that attached to *Alkimiya* are identical. It is in such a rational vocabulary of alchemy that we wish to find its first three terms. Since the list in question does not exist, we have to begin with the name alchemy itself, and on discovering its original meaning, deduce what could possibly be the next more or less important word to it. The etymology of *Kimiya* (Mahdihassan, 1951) has been discussed before, and is briefly as follows:

Kimiya = *Kim* (gold) + *Iya* (plant juice).

In the Chinese dialects of Fukin and Hakka of the South, the word *Kimiya* means gold (making) plant juice. In Mandarin proper it is *Chin-I*. The gold-making juice is to be compared with *Soma*, a juice which the Hindus and Iranians alike believed to impart immortality. *Soma* is a plant juice, and so is *Kimiya*. The former makes man immortal; the latter makes man immortal, but also confers an everlasting form on all perishable or changeable objects. A gold-making herb or a gold-making juice seems to have been conceived first by the Chinese. It is an extension of that herbalism which accepted *Soma* or a similar juice as the ideal drug.

We have now to inquire what is the active principle of the juice *Soma*. It would be the same for *Kimiya*. Animism believed that souls emanated from the sun (hence the justification of sun-worship all over the ancient world), and that plants also harboured them. Some herbs were rich in quanta of soul as compared with others; the herb that produced *Soma* was the foremost. When man took a potion of *Soma*, the soul it contained diffused into the body of the consumer and made him immortal. By being thus supplemented, the total soul content became large enough to make man immortal. The explanation should be pushed somewhat further. The *Soma*-made-immortal was no longer the previous individual who merely continued to live for ever. He was now a deity, a different species of being. His body had meanwhile changed and had become buoyant; he could now fly about in the air and even go up to heaven. Mythology has given pictures of such deities from all over the world. The point to remember is that a deity is not born immortal; it is *Soma* or the like that imparts this virtue, and it is the body and not the soul that undergoes the entire change. *Kimiya*, an equivalent of *Soma*, achieves such a change.

The alchemist tried to process a juice like the *Soma*. Whereas herbalism depended only on observation and selected one herb in preference to another, alchemy became entirely practical, trying to extract and conserve the active principle of such a herb. Thus began its strange experimentation. When the fresh juice, like *Soma*, was dropped, say, on a piece of copper, the herbal soul penetrated into the metal. Some liquid which was the vehicle of the soul would still remain on the surface of the copper piece, but the entire active principle or the soul would have diffused into the metal. The metal now became the vehicle of the soul, and the metal obviously became "juice incorporated". It was a case of induced transmigration of the soul from a plant to a metal. On the impact of the soul the new vehicle also became permanent, no longer liable to any change, and metal with a form which did not change was gold. Man became a deity, metal became gold. Thus synthetic gold is juice-made-gold or juice-incorporated, the carrier of the active principle, *Kimiya*. Thus the most important term in the science and craft of alchemy is the name for the omnipotent agent, the gold-making-juice. Without *Soma* there was no immortality, without *Kimiya* no immortality and no synthetic gold.

If we reason deductively, the next question that arises is that of the substrate on which the agent revealed its virtues. Synthetic gold was the product when the substrate was a metal, but a deity or a jinn when man consumed it, a diamond or a similar weather-proof precious stone when the juice was dropped on an ordinary stone. There cannot be one word for all the transformed substrates. For synthetic gold the Chinese term was *Kim-Tan* or *Chin-Tan*, the golden drug of immortality, gold (as we see, but) a drug of immortality (as we should know it). Natural gold, on the contrary, was not the vehicle of a juice like *Soma* or of its active principle. Synthetic gold was a drug equal in effect to a juice like the *Soma*. The drug-made-immortal, or the deity, had a special term in Chinese, *Hsien*. This, pronounced in a Chinese dialect, sounds *Jinn*, a being in China equal to one who had eaten ambrosia and made himself a Greek deity. The etymology of the Arabic word *Jinn* from the Chinese was first suggested by Davis (1943) and later confirmed by me (1951). *Kimiya*, *Hsien* and *Chin-Tan* are then the first three terms in alchemy arranged in order of their importance. The first is the cause, the other two are its effects.

Let us now find them in Greek. "Chemeia" is the science of alchemy: it is of Egyptian origin. Chumeia is its synonym, a pure Greek word. Neither of these two words connotes a substance. There were ambrosia-made-immortals already in Greece, hence no special word was needed as a synonym of *Hsien* or *Jinn*. But what is the name in Greek for the most important agent, *Kimiya*? Strangely enough, it is conspicuous by its absence. One should have the courage of one's convictions and say that there can be no terminology in alchemy unless there is a word for this omnipotent substance. "*Chemeia*" must be the missing word, but it has been thoroughly misunderstood. This leaves Chumeia, a later word, for the science and art of alchemy. "*Chemeia*" now becomes a concrete noun and connotes a substance, "Chumeia" an abstract noun and represents a science. The picture is at least clear, and the so-called confusion between "Chemeia" and "Chumeia" no longer troubles us. "Chemeia", as pronounced in modern Greek, sounds like *Kimiya*, which can be easily confirmed. It was taken from China to Alexandria by Arabs before Islam. At Alexandria in the first century A.D., the Greek spoken was nearer modern Greek in pronunciation, and hence *Kimiya* was transliterated as it would be spoken even today. For example, αληθεια, "truth", is pronounced "alithiya"; likewise χημεια sounds like *Kimiya*. In both these words "η" is pronounced "ee", as in feet, and "ι" as "y", or "ια" (*-iya*). When spoken fast χημεια sounds like χημια; these have been transliterated by scholars, not as words of modern Greek but as of classical Greek, as "Chemeia" and "Chemia" respectively. Χημεια then was a correct transliteration of the Arabic-Chinese word *Kimiya* into Alexandrian Greek, without being changed or in any way hellenized, by a Coptic alchemist, speaking Coptic, but writing in Greek. In Greek there is no equivalent of *Chin-Tan*. In Arabic and mediæval alchemical literature it is the philosopher's stone.

There is another important phase of study which the historians of alchemy have left in the background. This has been clearly noticed by Professor Hooykaas (1957). While reviewing the work of no less an authority than E. J. Holmyard, he comments that "the only thing one misses in this book is a clear exposition of alchemical theory". It is therefore desirable to throw some light on the theory of alchemy. To state that alchemy tried to make gold is a caricature of alchemy. Like a typical caricature, it has a touch of realism but no perspective. It is like the name "daddy-long-legs" for a mosquito-like insect with very long legs. To make a whole out of a part is the art of caricature. Alchemy tried to make every-

thing everlasting, and to confer immortality on metals was to make them gold. This is stated to have been achieved by changing base elements into sublime ones — those likely to change into forms which were immune to any further transformation. The theory of the animist, who later on became the alchemist, was that both soul and body were indestructible, but soul was unchangeable and universal in character, while matter was easily transformable and specific. The body turned into dust, which was taken up by plants and through them by animals and finally by man. Matter kept on changing its form; it became qualitatively different. The soul was not convertible into any component, and was to be treated as a small or large quantum capable only of transmigration. When the quantum of soul was large enough, its impact on matter changed the constituion of matter for the better, making it more sublime in character. For example, the alchemists believed that when ordinary common salt was refined by them, it could sublime as such without any decomposition. Philo, as a mystic philosopher, clearly indicated that "the soul can so dominate the body that it shows forth an imitation of the powers of the soul". It is this theory which was applied to alchemy. When the soul was made to diffuse into a metal, it changed the material constitution of the metal. Out of the matter we used to call metal some other substance was evolved. The human body likewise underwent a radical change; it becomes buoyant, a change far greater than when a metal became gold. This agent, or the soul, is the real life-element with creative powers, it brings about mutation in matter itself. Claude Bernard wrote that "if I had to define life in a word it would be: life is creation". To create a living object out of dead matter would also be creation. Synthetic gold is a life-containing vehicle; it can even act like an inoculant and serve as a living seed which can grow into another metal and make it gold also. Some believe that a virus is an enzyme that makes its substrate like itself. If synthetic gold is not like a germ, then it is a virus of the above type. The living nature and the life-bestowing power of *Kimiya* and of its carrier, synthetic gold, have to be acknowledged.

But all this transformation of matter occurs best when the ineffective original soul of the metal is first evacuated with heat or the body "killed" for the purpose. In the soul-evacuated body the plant-soul is easily made to enter. Thus copper has to be "killed" first with gentle heat and later "revived" by "the juice of immortality". The alchemists understood this literally. They applied the theory to themselves, and the occurrence of suicides among them is an historical fact. Even these experiments on themselves have not been properly explained. The recently dead body smeared with a drug of immortality could be revived as by the juice *Kimiya*. It is the transformed body that becomes the revived body. Of such a transformation there is a well-known example. When the Lord Jesus Christ died, his mortal remains lay buried for two days. After this short interment he revived, and could then ascend with his body straight up to heaven. Davis (1943) reproduces such a Chinese picture of a drug-made immortal, of one Prince Liu-An of Huai-nan, ascending Christ-like towards heaven. He is further accompanied by a dog and a cock, which are explained in a footnote stating that "the dog and the cock having respectively licked and pecked at the vessels in which the medicine was made (and temporarily remaining dead) also ascended into the sky". About the Muslim mystics or Sufis it is believed that they die before their death and become immortals thereby. This is due to their devotion, prayers and acts of piety. The alchemist believed that the same could be brought about by taking drugs designed for the purpose.

Summary.

The original meaning of the word *Kimiya* is a gold-making juice, a substance with life-elements or with creative powers. The next important term is *Hsien*, jinn or deity, the immortal. The third term is *Chin-Tan* or the golden drug of immortality, which can be equated with the philosopher's stone of the Arabs and of mediæval European alchemists. There is no acknowledged term in Greek either for *Kimiya* or for the philosopher's stone.

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Out of the Past.

MELBOURNE HOSPITAL.[1]

[From the *Australasian Medical Gazette*, July 21, 1902.]

AT a board meeting held recently the hon. medical and surgical staff conferred with the committee in reference to tenure of office and increase of the numerical strength of staff. Dr. Springthorpe presented the following resolutions carried by the honorary medical and surgical staff on the 18th June, 1902: "1. That the retiring age for indoor physicians be 65 and for indoor surgeons 60; but that as regards the present indoor members, their appointment be for thirteen years from expiry of present term of office in the case of those members who shall not have reached the age of 65 as indoor physicians and the age of 60 as indoor surgeons. 2. That vacancies for the indoor staff be filled by promotion from the out-patient staff, by seniority according to hospital rule. 3. That vacancies in the out-patient staff be filled by the subscribers. 4. That the number of beds be increased. 5. That there be five in-patient physicians and five in-patient surgeons, and that the number of out-patient staff be the same as at present." In submitting the resolutions arrived at, Dr. Springthorpe said that the present method of electing medical officers by the subscribers was most unsatisfactory. It had been the cause of a good deal of public scandal, and was recognized by the profession as carrying with it a great deal of professional disgrace. It was also unsettling to the staff, and militated against the performance of the best work. If security of tenure were assured the members of the hon. medical staffs would, he felt sure, disassociate themselves from other institutions and work only for the Melbourne Hospital.

British Medical Association.

WESTERN AUSTRALIAN BRANCH: ANNUAL MEETING.

THE annual meeting of the Western Australian Branch of the British Medical Association was held at the Dalkeith Civic Centre, Dalkeith, on March 11, 1961, DR. D. M. CLEMENT, the President, in the chair.

PRESENTATION OF B.M.A. PRIZE MEDALLION.

Dr. D. M. Clement presented the B.M.A. Prize Medallion to Dr. J. R. Masarei.

ANNUAL REPORT OF COUNCIL.

The annual report of the Council for the year ended March 11, 1961, was adopted. The report is as follows.

[1] From the original in the Mitchell Library, Sydney.

The President and members of the Council of the British Medical Association (Western Australian Branch) have much pleasure in presenting the sixty-second annual report of the Branch for the year ending March 11, 1961.

Membership.

The membership of the Branch has increased during the 12 months ended December 31, 1960, by a net amount of 21, as follows:

Membership at December 31, 1959		724
Losses:		
Transferred to other Branches	30	
Resigned	5	
Terminated—unfinancial	5	
Deceased	5	
	45	
		679
Gains:		
Transferred from other Branches	38	
Elected	27	
Membership reinstated	1	
	66	
Membership as at December 31, 1960		745

Obituary.

With deep regret we record the deaths of the following members which occurred during 1960: Dr. E. C. East, Dr. A. Eksteins, Dr. S. de V. Franklin, Dr. J. W. Pell, Dr. D. A. Quinlan. The sincere sympathy of the Branch is extended to the families of these late members.

Congratulations.

Council extended congratulations to Professor N. S. Bayliss, C.B.E., and Dr. Cyril Fortune, O.B.E., on these awards by Her Majesty.

Entertainment.

The following visitors to Perth were entertained by the Council at B.M.A. House: medical representatives who attended the Blue Cross Conference; Major-General Refshauge, who visited Perth to introduce his successor, Brigadier Clyne, as Director-General of Medical Services, Department of the Army; The Federal Minister for Health, Dr. Donald Cameron; Dr. A. Talbot Rogers, Chairman of the Representative Body of the B.M.A.; Professor D. E. C. Mekie, Chairman of the Overseas Committee of the B.M.A. Council also entertained all 1960 medical graduates of the University of Western Australia at a short informal gathering in the Council Room.

Meetings.

In addition to the anuual meeting, four general meetings of the Branch were held. The subjects of these meetings were as follows:

April: Film, "The Doctor Defendant".

May: "The Modern View of the Treatment of Fractures", Professor B. McFarland.

June: "Observations and Some Reflections on Recto-Colonic Surgery over the Past Three Decades", Mr. L. E. Le Souef.

August: "Problems of the Menopause", Professor S. Leon Israel.

Convocation.

No meeting of convocation was held during 1960.

Council Meetings.

Eleven meetings of the Branch Council were held. The record of attendance is as follows:

C. W. Anderson (Federal Councillor)	11
P. W. Atkins (Councillor)	9
M. de C. Clarke (Councillor)	8
D. M. Clement (President)	11
H. L. Cook (Chairman of Convocation)	9
D. E. Copping (Honorary Treasurer)	10
W. S. Davidson (Acting Commissioner of Public Health)	8
P. D. Goatcher (Assistant Honorary Secretary)	8
W. B. C. Gray (Councillor)	11
L. I. Henzell[1] (Commissioner of Public Health)	2
D. D. Keall (Past President)	10
F. C. Macaulay (Honorary Secretary)	10
W. B. Macdonald (Vice-President)	11
J. B. Mathieson (Commonwealth Director of Health)	11
A. A. Merritt (Councillor)	10
H. H. R. Nash (Councillor)	9

Office Bearers and Councillors, 1961.

The following have been elected for 1961:

President: Dr. D. M. Clement.

Vice-President: Dr. W. B. Macdonald.

Honorary Secretary: Dr. F. C. Macaulay.

Honorary Treasurer: Dr. A. Daly Smith.

Honorary Assistant Secretary: Dr. P. D. Goatcher.

Chairman of Convocation: Dr. H. L. Cook.

Federal Councillors Elected for 1961: Dr. C. W. Anderson and Dr. D. M. Clement.

The following have been elected as the five ordinary members of Council for 1961: Dr. P. W. Atkins, Dr. M. de C. Clarke, Dr. W. B. C. Gray, Dr. A. A. Merritt, Dr. H. H. R. Nash.

It is desired to express on behalf of the Branch the warmest appreciation of the work done by the retiring Councillors.

Representation.

The Branch was represented at various meetings and conferences during the past year as follows:

Council of the B.M.A.: Dr. Miles Formby.

Federal Council of the B.M.A. in Australia: Dr. C. W. Anderson and Dr. D. M. Clement.

Faculty of Medicine (University of Western Australia): Dr. H. L. Cook.

Australasian Medical Publishing Co. Ltd.: Dr. C. W. Anderson, Dr. D. M. Clement and Dr. H. L. Cook.

The Medical Journal of Australia (Editor's Representative in Western Australia): Dr. H. L. Cook.

State Health Council: Dr. D. M. Clement, Dr. H. L. Cook, Dr. I. O. Thorburn and Dr. M. F. Williams.

Health Education Council: Dr. A. A. Barr.

Nurses' Registration Board: Dr. L. E. Le Souef and Dr. R. H. Nattrass.

Silver Chain Association: Dr. C. W. Anderson.

Dental Board: Dr. I. O. Thorburn.

College of Dental Science: Dr. H. E. H. Ferguson.

Joint Committee with Underwriters' Association: Dr. H. L. Cook, Dr. H. M. Hill and Dr. F. C. Macaulay.

St. John Ambulance Association: Dr. A. L. Dawkins.

Optometrists' Registration Board: Dr. H. J. A. Barnard.

Sex Education (Parents and Citizens' Association): Dr. I. O. Thorburn.

Protection of Practices: Dr. L. A. Hayward and Dr. H. H. Stewart.

Cancer Council of Western Australia: Dr. F. C. Macaulay and Dr. A. A. Merritt.

Western Australian Council of Social Service: Dr. C. W. Anderson.

British Medical Agency Company Ltd.: Dr. J. P. Ainslie, Dr. C. W. Anderson, Dr. D. E. Copping, Dr. A. L. Dawkins, Dr. P. D. Goatcher, Dr. D. D. Keall, Dr. H. Macmillan, Dr. A. T. Pearson and Dr. J. H. Stubbe.

Medical Library of Western Australia: Dr. E. R. Beech, Dr. H. L. Cook and Dr. G. A. Kelsall.

Tuberculosis Association of Western Australia: Dr. V. A. F. Stewart.

Blood Transfusion Service: Dr. J. T. Irvine.

Department of Social Services Standing Committee on Rehabilitation: Dr. W. N. Gilmour.

State Medical Planning Committee: Dr. A. L. Dawkins.

Civil Defence Organization: Dr. A. A. Merritt.

[1] Absent overseas from May, 1960, to February, 1961.

National Safety Council of Western Australia: Dr. J. S. Lekias.

A.D.A. Fluoridation Education Committee: Dr. J. T. Irvine.

Health Education Council Television Committee: Dr. D. E. Copping.

National Heart Foundation: Dr. R. L. Leedman.

Annual Representative Meeting, Torquay: Dr. O. R. Corr and Dr. A. B. Wilson.

Committees.

The following are the members of standing subcommittees appointed by Branch Council:

Publicity: Dr. D. M. Clement (convener), Dr. H. L. Cook, Dr. F. C. Macaulay, Dr. W. B. Macdonald.

Medico-Legal: The President (convener), Dr. A. A. Barr, Dr. B. A. Hunt.

Medico-Pharmaceutical: Dr. H. L. Cook (convener), Dr. A. A. Barr, Dr. B. C. Cohen, Dr. L. I. Henzell.

Ethics: The President (convener), the Honorary Secretary, Dr. J. P. Ainslie, Dr. H. L. Cook, Dr. A. L. Dawkins, Dr. D. D. Keall, Dr. L. E. Le Souef, Dr. A. A. Merritt.

Fees Advisory: Dr. J. P. Ainslie (convener), Dr. P. W. Atkins, Dr. R. L. Leedman, Dr. F. C. Macaulay, Dr. H. Macmillan.

Committee to Confer with Benefit Organizations: Dr. H. L. Cook (convener), Dr. C. W. Anderson, Dr. D. M. Clement, Dr. J. B. Mathieson.

Social Relations: Dr. P. W. Atkins (convener), Dr. W. B. C. Gray, Dr. F. C. Macaulay, Dr. H. H. R. Nash, Dr. G. R. A. Raad.

Post-Graduate: Dr. D. E. Copping, Dr. J. G. Hislop, Dr. F. C. Macaulay.

Medical Benevolent: Dr. A. A. Merritt (chairman), Dr. W. B. C. Gray, Dr. H. Macmillan.

Hospital Policy: Dr. H. L. Cook (chairman), Dr. C. W. Anderson, Dr. D. M. Clement, Dr. D. E. Copping, Dr. P. D. Goatcher, Dr. D. D. Keall, Dr. F. C. Macaulay, Dr. W. B. Macdonald, Dr. A. K. Cohen, Dr. C. Fortune (R.P.H.), Dr. A. Daly Smith, Dr. E. Minchin (F.P.H.), Dr. B. W. Nairn, Dr. W. N. Gilmour (P.M.H.), Dr. J. L. Taylor and Dr. V. T. White (K.E.M.H.).

Public Health.

We wish to take this opportunity of thanking Dr. Linley Henzell, the Commissioner of Public Health, Dr. W. S. Davidson, the Deputy Commissioner of Public Health, and Dr. J. B. Mathieson, the Commonwealth Director of Health, for their valuable cooperation and assistance during the year.

Federal Council.

Dr. C. W. Anderson and Dr. D. M. Clement were the representatives of the Branch on Federal Council and attended two and three meetings respectively of the Federal Council during the year, full proceedings of which were recorded in THE MEDICAL JOURNAL OF AUSTRALIA. Dr. H. L. Cook deputized for Dr. Anderson at one meeting. Branch Council wishes to record its deep appreciation of the work performed by these members on behalf of the Branch.

Formation of Medical Association of Australia.

A Convention was held in Sydney in November, 1960, to consider a draft constitution which had been prepared by a steering committee appointed by Federal Council. Representatives from all branches of the Royal Colleges and all nationally organized medical associations and societies attended. The draft constitution was amended, and following consideration by Federal Council was referred back for further examination by the steering committee. The report of this committee will be considered at a meeting of Federal Council to be held later this month, and it is expected that the final draft of a constitution will be adopted. When this draft is received it will be referred to the Convocation of the Branch.

Australasian Medical Publishing Co. Ltd.

This Company completed another successful year. THE MEDICAL JOURNAL OF AUSTRALIA will continue to be distributed free to members in return for a capitation rate of 5s. per member, which is returned to the Branches in the form of debentures.

B.M.A. Prize.

The B.M.A. Prize for 1960 was awarded to Dr. J. R. Masarei. The Prize consists of a cheque for 50 guineas and an inscribed medallion, which will be presented to Dr. Masarei at the annual general meeting.

Hospital Policy Committee.

Among the many important matters which were considered by the committee during the year was a request by the honorary medical staff for advice on a plan for medical staffing at the Princess Margaret Hospital for Children.

Workers' Compensation Act.

The Workers' Compensation Act was amended to increase the limit on medical expenses from £100 to £150. A new schedule of fees for workers' compensation cases will come into operation on April 1, 1961, following prolonged negotiations with the Underwriters' Association.

Specialist Services.

Following a request from the Public Health Department that periodic visits of specialists be arranged, a surgeon conducted an exploratory tour of north-west ports and regions during the latter part of the year. Arrangements are currently in hand for a dermatologist and an ophthalmologist to conduct similar exploratory visits. The general pattern of future tours is at present being examined by the Public Health Department, the specialists concerned and the Council of the Branch.

Social.

Medico-Legal Golf: The annual golf match between the Law Society and the Branch was held at Lake Karrinyup on October 12, 1960. The medicos were again successful in the match between the professions.

Medico-Dental Golf: After a lapse of many years, a golf match between the Dental Association and the Branch is to be held this year at Lake Karrinyup Country Club on April 19.

Cocktail Party: The annual cocktail party was held on August 6, 1960, in the Dalkeith Civic Centre. The function was well attended by the membership.

B.M.A. House.

Accommodation at B.M.A. House is being extended and should be ready for occupation by tenants by March 31. The capital cost of this extension is approximately £15,000, and a long-term lease has already been entered into with the prospective tenants. The financial return to the Branch is considered to be satisfactory and will complete the second stage of development of the property at 8 King's Park Road. The final stage, which envisages the erection of a multi-storey building to provide professional accommodation for members of the Branch and allied professions, will proceed when it is known that the demand for such additional accommodation in West Perth warrants it. On present indications, this could be within the next five years.

British Medical Agency Co. of W.A. Ltd.

The Company has had another successful year with continued expansion in all its activities. An arrangement has now been entered into between the Branch and the Company that, for an annual sum, the Company will provide all administrative and clerical work required by the Branch. Members are urged to support this company, which is wholly owned by the Branch. The thanks of members are due to the directors nominated by the Branch Council who, in an honorary capacity, supervise its activities.

Medical and Associate Professions Superannuation Plan.

The membership is now 136, comprising 105 medical practitioners and 31 dentists. The plan offers an excellent scheme to members in private practice to provide for their retirement.

Temporary Group Term Assurance.

Concurrently with the implementation of the superannuation plan, B.M.A.C. has arranged a master policy with an insurance company, under which members may insure themselves at rates which are a small fraction only of the rates applicable to conventional life and endowment insurance policies. This scheme is available to all members whether in private practice or not.

BRITISH MEDICAL ASSOCIATION (WESTERN AUSTRALIAN BRANCH).

Statement of Income and Expenditure during Twelve Months Ended December 31, 1960.

INCOME.

	£ s. d.	£ s. d.
By Members' Subscriptions		9,731 5 4
„ Interest—		
Australasian Medical Publishing Company Limited—		
(i) Debenture Series A-D	26 5 0	
(ii) Debenture Series E	188 17 5	
		215 2 5
		£9,946 7 9

EXPENDITURE.

	£ s. d.	£ s. d.
To Subscriptions to—		
(a) Members' Journals—		
(i) Australasian Medical Publishing Company Limited	185 12 6	
Less Series E Debenture	183 2 6	
		2 10 0
(ii) B.M.A. London		1,924 13 0
		1927 3 0
(b) Federal Council — Capitation		899 12 6
(c) Medical Benevolent Committee		705 12 0
(d) Flying Doctor Service		1 1 0
(e) Historical Society of W.A.		1 1 0
(f) Medical Library of W.A.		250 0 0
		3,784 9 6
„ Cost of Administration—		
Audit Fees	25 4 0	
B.M.A. Prize	68 0 0	
Car Expenses — Secretary	392 15 4	
Depreciation	38 16 9	
Duplicating	10 0 10	
Legal Expenses	82 17 6	
Medico-Political Expenses	140 1 0	
Postages and Petty Cash	217 1 8	
Printing Expenses	24 18 0	
Salaries	2,309 1 6	
Stationery	40 3 11	
Superannuation — Miss P. Oliver	81 6 0	
Superannuation — Secretary	200 15 5	
Telephone	51 0 0	
		3,592 1 11
		7,376 11 5
„ Excess of Income over Expenditure		2,569 16 4
		£9,946 7 9

Statement of Assets and Liabilities at December 31, 1960.

ASSETS.

	£ s. d.	£ s. d.
Subscriptions in arrears		168 10 6
Bank of New South Wales		531 1 2
Investments—		
(a) Australasian Medical Publishing Company Limited—		
(i) Debentures A-D	420 0 0	
(ii) Debentures E	3,220 7 6	
	3,640 7 6	
(b) B.M.A.C. Shares	9 0 0	
		3,649 7 6
Fixed Assets—		
B.M.A.C.—B.M.A. House Loan Account	35,047 12 8	
Furniture and Fittings as at January 1, 1960	799 14 0	
Less Sold	23 0 0	
	776 14 0	
Less Depreciation	38 16 9	
	737 17 3	
		35,785 9 11
Sundry Funds Overdrawn—		
Post-Graduate Grant Account		23 10 8
		£40,157 19 9

LIABILITIES.

	£ s. d.	£ s. d.
Subscriptions in Advance		956 11 0
Sundry Funds in Credit—		
B.M.A. House — Members' Loan Account	12,446 5 0	
B.M.A. Personal Accident Insurance— Payments in advance	75 0 0	
Car Badge Account	85 9 2	
Entertainment Fund	95 9 0	
Library—Donations Account	27 11 2	
Library—Cyril Bryan Fund	179 18 1	
Library—Harry Lucraft Fund	22 1 0	
Medical Benevolent Committee	1,590 1 8	
Medico-Legal Golf	21 16 11	
Nelson Bequest	17 7 1	
Post-Graduate Committee Account	144 8 6	
Publicity Fund	75 5 4	
		14,780 12 11
Accumulated Reserve Account—		
Balance at January 1, 1960	21,838 14 3	
Add Excess of Income over Expenditure	2,569 16 4	
Add Transferred from Building Fund	12 5 3	
		24,420 15 10
		£40,157 19 9

I report that I have audited the accounts of the British Medical Association (Western Australian Branch) for the year ended December 31, 1960. In my opinion the accompanying balance sheet is properly drawn up and exhibits a true and correct view of the state of the Association's affairs as at December 31, 1960, and the attached income and expenditure account is also properly drawn up and exhibits a true and correct view of the Association's affairs for the year. Both are in accord with the best of the information and explanations given to me, and as shown by the books of the Association.

Perth, Western Australia.
March 7, 1961.

(Signed) E. B. JACKMAN, A.A.S.A., A.C.I.S.,
Auditor.

Staff.

Council wishes to express to the office staff its sincere thanks for their cooperation during the year.

MEDICAL BENEVOLENT COMMITTEE.

Dr. A. A. Merritt presented the report of the Medical Benevolent Committee, which was adopted. The report is as follows.

The income of the Committee during the year totalled £712 19s. This was derived from an amount of one guinea set aside from subscriptions received from members, a donation of five guineas received from a member as an expression of appreciation for medical services rendered by a colleague, and two guineas as a donation from a practitioner who is not a member of the B.M.A.

The expenditure during the year totalled £827 3s. 3d. Gifts to four widows and three members amounted to £550 5s. 9d., and in addition loans totalling £276 17s. 6d. were made to one widow and one member. The balance held by the Committee at the end of the year was £1590 1s. 8d. As will be seen, the expenditure of the Committee exceeded its income by only a relatively small amount. On present indications, the Committee will need to expend considerably more than its expected income during the current year.

At the last annual general meeting, the Council of the Branch was asked to examine two questions. Firstly, the desirability of increasing the amount set aside annually from members' subscriptions from 1 guinea to 2 guineas. Council referred this question to this Committee for report. The Council adopted its recommendation that for the time being there should be no change, it being considered that there is a sufficient credit in Medical Benevolent funds to meet known and expected expenditure over the next year or so. In submitting its rcommendation in this matter, the Committee did so in the knowledge that, should the need arise, additional funds would be made available by Branch Council.

The second question raised at the annual general meeting concerned the desirability of Council adopting the Victorian system, whereby members are recommended to make donations to medical benevolent funds in acknowledgement of medical services rendered by colleagues. While Council considered there was some merit in the proposal, it did not feel it should go so far as to recommend to the membership a departure from the customary method of acknowledging these services. It felt that the method of expressing appreciation to colleagues was a matter for individual decision by each member.

The Committee is making grants available to all known cases where such assistance is thought to be necessary. It appeals to the membership to refer to the Committee in cases where it is known that a member or the dependants of a deceased member may need financial assistance.

POST-GRADUATE COMMITTEE OF WESTERN AUSTRALIA.

The report of the Post-Graduate Committee for the year 1960 was presented by Dr. F. C. Macaulay, in the absence of Dr. J. G. Hislop, and was adopted. The report is as follows.

As in previous years, the Post-Graduate Committee's activities included the organization of visits of overseas lecturers, the arrangement of clinical meetings of the Branch, publicity for all post-graduate activities in Western Australia, and the sponsorship of doctors undertaking post-graduate education overseas.

During 1960, nine overseas lecturers visited Perth under the ægis of the Australian Post-Graduate Federation in Medicine: Professor Bryan B. McFarland, the category "A" lecturer, Professor J. Dauphinee, Professor S. L. Israel, Professor G. M. Wilson, Professor F. G. Young, Mr. S. Way, Dr. M. Lederman, Dr. R. Robertson and Dr. C. W. M. Whitty. Additional visitors were Dr. W. Brigden, whose visit was sponsored by the Cardiac Society, Professor J. McMichael, the Sims Commonwealth Travelling Professor, and Dr. R. Williams, the Baker Travelling Professor.

As members are aware, Convocation decided that, because of the number of overseas lecturers visiting Western Australia, the Committee should not arrange regular monthly clinical meetings of the Branch. During 1960, only four clinical meetings were held, one of which took the form of a joint meeting with members of the Law Society of Western Australia. This meeting was very well received by the membership of both Associations, and will be repeated in the 1961 programme. A topic considered to be of interest to both professions will be discussed.

Country groups continue to display a lack of interest in visits by lecturers offered to them by the Committee. A most successful post-graduate meeting was held at Narrogin. This was arranged by the College of General Practitioners, which proposes to conduct two week-ends of this nature during 1961. The Committee will provide every assistance towards the organization of these week-ends.

The Post-Graduate Committee continued its policy of recording post-graduate lectures, but the demand from country practitioners for the recordings to be sent to them remains very small.

A most important conference on Post-Graduate Medical Education was held in Sydney in August. The conference was held under the auspices of the Post-Graduate Federation, and representatives from all States of Australia, New Zealand, Australian universities, the Royal and other medical colleges and associations were represented. The report of the conference, which concerned itself with the first five years after graduation, has been widely distributed. Representatives of organizations on the Post-Graduate Committee in Western Australia have been asked to arrange for a report to be considered by their organizations to see if any of the recommendations may be implemented.

The Committee wishes to acknowledge the assistance received from the Board of Management of the Royal Perth Hospital in making the main lecture theatre available for most of the post-graduate lectures. The annual grant of £750 which is made available by the Western Australian State Government, is of considerable assistance towards the total cost of arranging post-graduate medical education here. The great bulk of the cost of administration is met by the Branch.

REPORT OF THE HONORARY TREASUTER.

On behalf of Dr. P. D. Goatcher, the Honorary Treasurer of the Branch, Dr. D. E. Copping presented a report on the financial affairs of the Branch, which was adopted. The report is as follows.

The amount transferred to the Accumulated Reserve Account for the year under review was £2582 1s. 7d., which included an amount of £12 5s. 3d., which was donated by a member towards the Branch Building Fund. The cost of administration of the Branch affairs increased by approximately £600 when compared with the previous year. This increase was due to the need for increased clerical assistance and normal increments in salaries of the staff.

As was indicated in this report last year, B.M.A. London found it necessary to increase the subscription rates payable by members overseas. This involved the Branch in additional expenditure of approximately £800.

In order to provide additional professional accommodation, Council decided to expend a further £15,000 on the property at 8 King's Park Road. This is the second planned phase of development, and it is expected that the additions will be completed by the end of this month. A long-term lease has been entered into with the members who will occupy the premises, and the financial return to the Branch is considered to be satisfactory. With the continued purchases by members of properties in West Perth for use as professional rooms, it does not appear likely that the final stage of development of the property will take place for a number of years.

An arrangement has been entered into between the Council and the directors of the British Medical Agency Company that for an annual sum the Company will provide complete administrative facilities for the Branch affairs. In order to do this, it was necessary to obtain the approval of the Taxation Department for the books of the Agency Company to be closed on December 31 each year, in order to coincide with the financial year of the Branch. Council expects this arrangement to provide further economy in the administration of the affairs of the Company and the Branch. It will also enable future honorary treasurers to present at the general meeting a consolidated statement which will give a complete picture of the financial affairs of the Company and the Branch. This has been impossible previously with different balancing dates.

The Agency Company has further expanded its activities and is becoming an ever-increasing importance financially to the membership. The Company's income from all sources for the year ended June 30, 1960, was in excess of £5000, and with continued support from the membership will increase further in the years to come.

APPOINTMENT OF AUDITOR.

Mr. E. B. Jackman, A.A.S.A., A.C.I.S., was reappointed auditor of the Branch.

VOTE OF THANKS.

Dr. N. Cuthbert, on behalf of the members, moved a vote of thanks to the members of the Council for their work during the past year. The motion was carried with acclamation.

THE C. H. MILBURN PRIZE, 1961.

THE C. H. Milburn Prize is offered for an essay or study on a subject of forensic medicine. This Prize is of £100 in value. Any medical practitioner registered in the British Commonwealth or the Republic of Ireland is eligible to compete. Entries must consist of original and unpublished material, and preliminary notice of entry is required. Forms and further particulars may be obtained from The Secretary, British Medical Association, B.M.A. House, Tavistock Square, London, W.C.1, England. The closing date for entries is October 31, 1961.

PRIZE ESSAY COMPETITION FOR MEDICAL STUDENTS.

THE subject for the Prize Essay Competition of the B.M.A. for medical students is "The Doctor-Patient Relationship in and out of Hospital" or "The Desirability of a Knowledge of the Arts Subjects in the Practice of Medicine". Prizes of £25 will normally be awarded, subject to the number and standard of the entries received. Any student who is a registered member of a medical school in the United Kingdom, the British Commonwealth or the Republic of Ireland is eligible to compete. Entry forms and further particulars may be obtained from The Secretary, British Medical Association, B.M.A. House, Tavistock Square, London, W.C.1, England. The closing date for entries is December 31, 1961.

COMPETITION FOR MEDICAL FILMS.

IN order to encourage the production of medical films, the Council of the British Medical Association is prepared to award medals and certificates for 16 mm. medical films to be submitted in open competition. Awards will be considered in two categories—for commercial and for non-commercial film producers. The choice of subject is left to the competitor. Entry forms and further particulars may be obtained from The Secretary, British Medical Association, B.M.A. House, Tavistock Square, London, W.C.1, England. The closing date for entries is September 30, 1961.

THE SIR CHARLES HASTINGS AND CHARLES OLIVER HAWTHORNE CLINICAL PRIZES, 1962.

THE Sir Charles Hastings and Charles Oliver Hawthorne Clinical Prizes are awarded for the promotion of systematic observation, research and record in general practice. These prizes are respectively of £75 and £50 in value. Any member of the Association engaged in general practice is eligible to compete. Entry forms and further particulars may be obtained from The Secretary, British Medical Association, B.M.A. House, Tavistock Square, London, W.C.1, England. The closing date for entries is November 30, 1961.

THE BRACKENBURY PRIZE, 1963.

THE Brackenbury Prize for 1963 will be awarded for a contribution on "British Medicine: Its Influence Overseas in the Past and Problems for the Future". The Prize is of approximately £100 in value. Any member of the British Medical Association is eligible to compete. Entry forms and further particulars may be obtained from The Secretary, British Medical Association, B.M.A. House, Tavistock Square, London, W.C.1, England. The closing date for entries is December 31, 1962.

Correspondence.

EXTERIOR GESTATION AND LIFE SET.

SIR: In reference to the article "Exterior Gestation and Life Set", could I through your columns plead with the writers and similar workers to present their concepts in terms that the general practitioner with an interest in pædiatrics and psychiatry can understand? Surely it must be such people who are to carry out prophylaxis on the family level; but how can we evaluate the ideas expressed (unless we own a dictionary of modern psychiatric terms)? Surely if any ordinary general practitioner can read great psychiatric classics such as "The Psychopathology of Every Day Life", it is not too much to ask modern workers to present their ideas in simpler language.

For myself I found the article interesting—except for the terms I have never heard of before. The problem of the asthmatic child is surely of wide interest to pædiatricians and general practitioners — but must we learn a new language to discuss it?

Yours, etc.,

DOROTHY J. OLIVER.

Flat 4,
5 Chomley Street,
Windsor.
July 17, 1961.

BACTERIAL ENDOCARDITIS IN SYDNEY, 1950-1959.

SIR: Dr. J. Hickie's survey of 279 cases of bacterial endocarditis from seven major Sydney hospitals (MED. J. AUST., June 24, 1961) with an overall mortality rate of 46% gives considerable food for thought.

It is interesting, and perhaps important, to note that in this series anæmia of normochromic normocytic type was present in 66% of cases, and that the average time elapsing between the onset of symptoms and the provisional diagnosis was 9·9 weeks. The commonest modes of presentation were fever in 56% of cases and malaise in 39% of cases. The first laboratory test, therefore, that was probably done would have been the full blood count, which in two-thirds of these patients revealed a normochromic normocytic anæmia. The patients remained, however, undiagnosed, and the processes responsible for their anæmia must have continued during the following weeks and months that they remained diagnostic puzzles. During this long interval between onset of symptoms and provisional diagnosis, one can readily conceive an additional factor, iatrogenic in origin, entering the field on the side of anæmia, while the patient's vitality ebbed further and the physician became more baffled by the mystery illness, "pyrexia of unknown origin".

Repeated attacks on the patient's veins, with varying amounts of blood withdrawn, will have gone relentlessly on during these trying weeks and months of diagnostic uncertainty—repeated blood cultures, serological tests for brucellosis, typhoid, syphilis, mononucleosis and maybe dysentery, E.S.R., blood urea, liver-function tests, several searches for L.E. cells, estimations of A.S.O. titre, serum transaminase, serum electrolyte levels, may well all have been done. As already pointed out, a full blood count will have been done first; and so, by the end of all the investigations and after several weeks or months' more illness before the diagnosis is made, the patient's anæmia is likely to be lower than the figure indicated by the initial hæmoglobin level.

An important factor in the treatment of some of these patients could well be the giving of blood to boost up their own defence mechanisms. It would be interesting to know, therefore, what percentage of these 279 patients received blood transfusion, and whether those that did receive blood improved clinically or not. It would, of course, be important to know the criteria for blood transfusion in these patients. If it was reserved mainly for anæmic patients moribund on admission, no valid conclusions could be drawn. On the other hand, if two groups of patients could be found, each group consisting of patients in approximately equal numbers as regards severity, paired off as regards organism found in blood culture, but differing according to the receiving of blood transfusion, yet receiving the same antibiotic régime, a valid conclusion could be reached regarding the efficacy or otherwise of blood transfusions in these patients.

I have several times noticed a dramatic improvement in the clinical state of patients with pneumonia, who have

remained stationary in their clinical state despite treatment with antibiotics to which their infecting organisms are sensitive *in vitro*, after a blood transfusion has been given to raise their hæmoglobin from 8-10 grammes *per centum* up to 12-14 grammes *per centum*.

Recently I witnessed an almost miraculous improvement in a young girl after she had received a blood transfusion which raised her hæmoglobin from 9 to 13·5 grammes *per centum*. She had been severely ill with symptoms and signs of toxæmia for two weeks, during which time she had received most of the commonly used antibiotics before she came under my care. She had multiple suppurative arthritis, osteomyelitis of one leg, arm and clavicle, staphylococcal pneumonia, endocarditis and cardiac failure. Staphylococcus resistant to all commonly used antibiotics was grown on culture. She was digitalized, given 100 million units of crystalline penicillin intravenously daily, and intravenous hydrocortisone for a week, but remained extremely toxæmic. It was then that she was given a blood transfusion. Within two days her appearance improved markedly, her appetite began to return, she started taking an interest in her surroundings, her swinging temperature subsided and her sleeping pulse rate fell from 132 to 108 beats per minute. By this time "Celbenin" and novobiocin had become available for her use, and she continued her improvement.

Yours, etc.,

Public Health Department, JOHN BIDDULPH.
Lae,
Territory of Papua and New Guinea.
July 19, 1961.

THE STAFFING OF PUBLIC HOSPITALS.

SIR: In the Journal of June 17, 1961, Dr. Stuckey has given a beautifully written exposition of public hospital staffing as it applies to New South Wales. His recommendations to adopt, even in part, the system of intrastaff committees, as practised in the United States, would do much to improve the standard of patient care in public hospitals. These American committees — tissue, hospital infection, perinatal mortality, pharmacy, staff credentials, medical records and others—are all critical bodies whose function is to review hospital charts and to see that reasonable standards of medical practice are maintained; that charts are complete and up to date; that pre-operative surgical diagnosis does in fact agree with the pathological findings; and that hospital-acquired infections and infant deaths are minimal.

While it is true that these committees do have considerable powers, such power is not unlimited, since any matter which cannot be resolved by a committee can be submitted to the whole staff for popular vote at the next monthly meeting. The powers of the chiefs of service and also of the chief of staff are likewise not unlimited, since, as in any similar democratic body, these officers are elected annually in the case of the chiefs of service and triennially in the case of the chiefs of staff. To be a chief of service does not necessarily imply seniority in age or in years of service; and the most junior specialist may be appointed chief of service, and frequently is, if he secures the necessary votes at the annual elections.

The term "full-time" appointment would not be used in the United States, since a full-time appointment would imply service to the hospital continuously for 24 hours a day, 365 days a year, and this, of course, is not what is intended. The College of American Pathologists recommends to its members that contracts with hospitals should avoid the term "full-time" and rather state that pathologists shall devote such time to the hospital as is requisite to supervise and perform the work of the department competently. When this duty is discharged, the pathologist is free to utilize the remainder of his time as he chooses—i.e., in private practice if he so desires.

If the hospital is to be regarded as a special type of hotel, then pathological services are just as much the practice of medicine as are clinical services, and the pathologist is in fact a consultant physician. Therefore, if the medical attendants of intermediate and private patients are entitled to charge patients in public hospital, so also should pathologists be entitled to charge a reasonable fee for service, having regard to the facilities provided them by the hospital in order that they may earn that fee. A corollary of this is that in any insurance scheme similar to the Blue Shield-Blue Cross system, pathological services should be covered by Blue Shield, as are all other medical services, and not by Blue Cross, which covers purely hospital service.

There has been, for too long, a tendency to regard pathologists as ancillary servants rather than as medical specialists with status equal to that of the clinical staff; indeed, in the Chifley era I have heard a member of the Federal Council declare: "They can nationalize the radiologists and pathologists, so long as they do not interfere with the doctors." Any reorganization of public hospital staffing must, to be equitable, have the approval of minority bodies such as the College of Pathologists of Australia.

Yours, etc.,

200-15th Avenue North, C. E. MARSHALL, M.C.P.A.
Seattle,
Washington,
U.S.A.
July 18, 1961.

MEDICINE AND AUSTRALIAN HISTORY.

SIR: Even medical "history is bunk": as illustrated by "the white plague", "inverted gout" and the discovery of New South Wales by Lieutenant Hicks, R.N., of H.M.S. *Endeavour*, navigated by Lieutenant James Cook, R.N.

Reading Cook's log, I was surprised to find that a tuberculous Lieutenant Hicks, R.N., was the first to see the mainland of New Holland from *Endeavour*. Lieutenant Cook says he died of the white plague on the way home. Also Henry Kendall was wrong in "the last of Forby Sutherland was laid". Forbes Sutherland's death occurred on *Endeavour*, and he was buried ashore at Botany Bay, truly the first white man to be buried in Australia, as Kendall says. He died, says Lieutenant Cook, of "inverted gout". What, sir, is "inverted gout"? Can any of my learned colleagues tell me? I'm not very bright.

Yours, etc.,

607 New South Head Road, GODFREY HARRIS.
Rose Bay,
New South Wales.
July 14, 1961.

AN AUSTRALIAN MEDICAL ASSOCIATION.

SIR: Dr. Hugh T. McDonald (MED. J. AUST., July 15, 1961) supports Sir Henry Newland (MED. J. AUST., June 10, 1961) in his demand for a written-in provision in the constitution of the Australian Medical Association for a plebiscite of all the members before they, the members, could agree to a National Health Act which would commit them to direction by the Government. The wisdom of this demand lies in just this fact—that under the Federal Constitution the profession cannot be forced into direction by the Government of the Commonwealth, though it could be, if any body, which claimed to have the due discretion, contracted it into such a subservience. This almost happened in 1938 under the *National Insurance Act*.

Every sentence of Sir Henry's letter contains a burning truth. No single member of the profession in Australia ever did a more lasting service in preventing its conscription than Sir Henry for his taking of the initiative in writing, as he relates in his letter, to Mr. Menzies, then Leader of the Opposition, requesting his aid in having settled in the Referendum Bill those words in the brackets "(but not so as to authorize any form of civil conscription)". With a knowledge of all the facts and negotiations on this tremendous question, and after confirmation on two or three occasions from Mr. Menzies himself I have no doubt whatever that Sir Henry is correct. The profession's debt to Sir Henry will continue until the day when, God forbid, it should vote itself into subjection. As Sir Henry pointed out, there has already been one successful action before the High Court on the application of those words in the brackets to an Act of Parliament. The effect of that decision should never be lost sight of by the profession.

Dr. McDonald may or may not have overlooked its importance. Whether that be so or not—and I hope in appreciation of the spirit of his letter that it is not—it appears to be wisdom to write into the constitution of the new Association an extra precaution that the profession cannot be brought under the direction of the Government without a vote in favour of that by itself, and further, without a majority vote of the State Councils, in proportionate terms of their individual membership.

With considerable experience of the representative bodies of the profession and of discussion with governments, I

have come to have little confidence in a large Assembly such as is proposed in the new constitution. I have seen too many of these swayed by effective if not sound oratory. The true repository of power in the profession is in the rank-and-file membership, and it has a mouthpiece in the form of State Councils, electing, as now, delegates to the Federal Council, which could not be improved on.

Finally, and at large, I agree with Sir Henry and Dr. McDonald that the final draft of the new constitution should be approved at a plebiscite of members, to be regarded in each State as a direction to its Council in giving instruction to its delegates.

Yours, etc.,

113 Homer Street, Undercliffe, New South Wales. RONALD GRIEVE.

July 17, 1961.

THE VIRUS IN THE ÆTIOLOGY OF CANCER.

SIR: Your leading article (July 8, 1961) on the above subject makes no reference to the views expressed by one of the world's leading virologists, the Nobel laureate, Sir Macfarlane Burnet, O.M.:[1]

> The real question is not whether virus cancer is possible. It is whether viruses play any significant part in the ætiology of human cancer. I believe the simple evidence from age incidence positively excludes a virus from ætiological consideration for all but one form of malignancy. The one exception with an age incidence somewhat resembling viral infection is acute leukæmia. But since this disease has upon occasion been produced in man by the chemical mutagenic agent, ionising radiation, I believe that a virus ætiology even here is most unlikely.

"The simple evidence from age incidence" is the compliance of cancer mortality with the Gompertz function (Metcalfe, 1955).[2]

Cancer hypotheses always follow trends in biological science. Nucleic acid research certainly occupies the centre of the stage today, and since virus is composed of NA, there is a regrettable tendency to regard them as identical agents in carcinogenesis. There is considerable evidence for the genetic rôle of NA in human carcinogenesis. It would, however, be as incorrect to say that human ontogeny was virogenic because it was chemically based on NA, as to assert that carcinogenesis is virogenic.

Since there is no evidence linking virus with human cancer, clinicians must cast a critical eye at the unrestrained enthusiasm with which laboratory workers are at present endeavouring to influence medical thought.

Yours, etc.,

Dorchester House, 149 Macquarie Street, Sydney. KENNETH W. STARR.

July 13, 1961.

POST-GRADUATE CLINICAL TRAINING IN THE UNITED STATES OF AMERICA.

SIR: Many young Australian graduates have recently been turning to the United States of America for post-graduate training. Previously most of these posts were mainly of a research nature, but more and more students are going to the U.S.A. for clinical training in one of the specialties. However, it may not be widely known in Australia that recently there have been imposed certain restrictions on the activity of foreign medical graduates desiring to have clinical patient responsibility.

In October, 1957, with the desire to maintain control of the standards of foreign medical graduates entering on a training programme, the Educational Council for Foreign Medical Graduates — E.C.F.M.G. — was formed under the sponsorship of the American Medical Association, the American Hospitals Association, Association of American Medical Colleges, and the Federation of State Medical Boards. This Council was charged with the responsibility of conducting a qualifying examination which has now come to be called the "American Medical Qualifying Examination".

The first examination was held in September, 1958, and it was expected that by July, 1960, all foreign interns and residents at that time in the U.S.A. would have passed the examination. With this goal achieved, it is now the policy of the Council that any foreign graduate desiring a residency training programme in the U.S.A. must first pass the American Medical Qualifying Examination before he will be allowed patient responsibility.

The examination is held every six months in 132 centres throughout America and overseas. It is of the multiple-choice type, which is probably an unfamiliar form for most of the candidates. The examination consists of one paper in the morning containing 180 questions for which three and a half hours are allowed, and in the afternoon an English test followed by another 180-question paper for which only three hours are allowed. The subjects covered are medicine, surgery, obstetrics, gynæcology, pædiatrics, with some questions on basic physiology, biochemistry and anatomy. A pass rate of 75% is required, although those scoring between 70% and 75% are allowed to sit the next examination. In the examination held in September, 1960, 44% of the candidates passed with a score of 75% or more, 28% scored between 70% and 75% and had to sit another examination, while 28% scored less than 70% and failed the examination outright.

While this record may sound disturbing, it must be realized that many of the candidates are from the Far East and Latin-American countries, and frequently have a language barrier, which is greatly to their disadvantage in the multiple-choice type of examination, where so much depends on the interpretation of the question.

It is recommended that any graduate intending to travel to the U.S.A. for training should realize that it will be necessary to sit the A.M.Q.E., and he should familiarize himself with the intricacies of the multiple-choice type of examination. The writer is not certain whether this examination is available in Australia, but this information could be obtained from the Educational Council for Foreign Medical Graduates, 1710 Orrington Avenue, Evanston, Illinois.

Yours, etc.,

Department of Plastic Surgery, University of Texas Medical Branch, Galveston, Texas. JOHN S. BARNETT.

July 19, 1961.

[1] *Acta Un. int. Cancr.*, 1959, 15: 34.

[2] MED. J. AUST., 1955, 1: 877.

Obituary.

ALWYN LESLIE KINNA.

WE are indebted to DR. H. M. BRAYE for the following appreciation of the late Dr. Alwyn Kinna, up to the time of his death Medical Superintendent of the Mental Hospital, Stockton, N.S.W.

As a member of the staff of the late Dr. Alwyn Kinna, may I pay tribute to a kind and gentle man?

He was a quiet administrator who, from his own keen observation, knew what happened in his hospital. Never did he make a bad situation worse—always with patience and forbearance the matter was adjusted without breeding resentment.

His manner to patients and staff was, at all times, courteous and friendly, and his knowledge of the patients astonishing. Unselfish and considerate of his staff as he was, three days before his death, ill and very tired, he insisted on giving his lecture to his third-year nurses, whose examination takes place next month. A sound clinician with great knowledge of his own subject, he was above all a psychiatrist with wisdom, and a medical superintendent loved and respected by his staff.

Notes and News.

Poliomyelitis Vaccines.

The Minister for Health, Dr. D. A. Cameron, has made the following statement about poliomyelitis vaccines.

Although live poliomyelitis vaccines for oral use are being advocated in other parts of the world, it is not proposed to use these vaccines in Australia in preference to Salk vaccine at present. Recently the Poliomyelitis Committee of the National Health and Medical Research Council met

in Melbourne and gave consideration to the question. The Committee includes medical officers from all State Health Departments concerned with the poliomyelitis immunization campaign. The Committee reported as follows:

> In view of the fact that the use of Salk vaccine manufactured in the Commonwealth Serum Laboratories has been so outstandingly effective in reducing the prevalence of poliomyelitis throughout Australia the Committee recommends that—firstly, its use should be continued in all States for all age groups; and secondly, that poliomyelitis vaccine (C.S.L.) and quadruple vaccine (C.S.L.) remains the basis of immunization programmes.

International Children's Centre, Paris: Two Fellowships in Nutrition.

Information has been received from the International Children's Centre, Paris, relating to the Guigoz Fellowship and the Nestlé Fellowship (worth 10,000 new francs), both of which are offered for research in nutrition. Both fellowships for 1962-1963 will be awarded in the spring of 1962, and for both candidates are required to submit the following with their applications: (i) a *curriculum vitæ*, setting out their work on biological and social problems in the feeding or nutrition of infants and children; (ii) a letter of introduction from one of their teachers; (iii) a description of the studies which they wish to pursue with the help of the fellowship. All candidates must have an adequate command of the French language. At the termination of their fellowship, Fellows will be required to submit to the International Children's Centre a scientific paper on the studies they have pursued. Applications, and requests for further information, should be addressed to the International Children's Centre, Château de Longchamp, Bois de Bologne, Paris XVI^e^, France.

Malaria Eradication Plan in North Borneo.

A campaign to eradicate malaria from the British Territory of North Borneo will start on July 1, 1961, with the assistance of the World Health Organization and the United Nations Children's Fund. Of the 454,000 inhabitants of North Borneo, about 334,000 are constantly in danger of malaria infection. In some districts 70% of the children suffer from malaria, and the disease is responsible for about 22% of all deaths registered in the country. According to the present plan, it is expected that malaria will be wiped out from the territory by 1970. The campaign will contribute much to the socio-economic development of North Borneo. It will, for example, help overcome the present shortage of labour in the territory. The cost of the campaign is estimated at U.S.$2,510,000, of which around U.S.$1,600,000 will be paid by the Government, the rest mainly by U.N.I.C.E.F. for supplies and equipment, and by W.H.O. for technical supervision and training of personnel.

International Symposium on Emergency Resuscitation.

An International Symposium on Emergency Resuscitation, embracing rescue breathing and closed-chest cardiac massage, is being arranged by the Norwegian Association of Anæsthetists, and will be held in Stavanger, Norway, from August 21 to 25, 1961. The scope of the symposium will include manually operated appliances, but not devices which need an external source of power. Recent developments in methods of teaching will receive special attention. The language of the symposium will be English. A number of international authorities have accepted invitations to read papers and take part in panel discussions. It is suggested that organizations concerned with rescue work may care to send observers and medical advisers to the symposium, and there are a limited number of places for such delegates. Those interested are invited to write as soon as possible to the President of the Norwegian Association of Anæsthetists, Dr. Ivar Lund, Ullevål Hospital, Oslo, Norway, from whom the necessary information may be obtained.

Animal Quarantine Legislation.

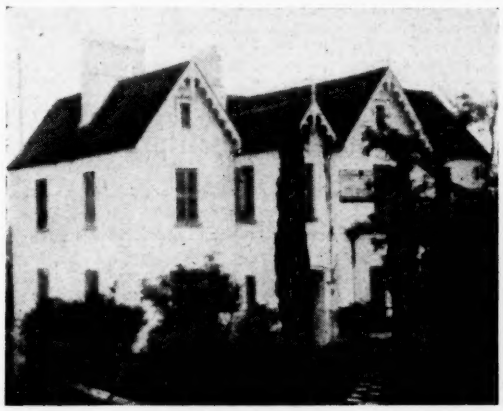
The Minister for Health, Dr. Cameron, has announced details of several amendments to animal quarantine legislation. The legislation applies to the importation of animal products. Some restrictions have been relaxed and some new precautionary measures have been adopted.

The importation of carcasses and edible parts of birds and of raw meat from New Zealand will in future be permitted by air as well as by sea. Previously these goods from New Zealand could be imported only by sea. Fertilizer and stock feed of animal origin, if in the form of samples, will also be permitted to be imported by air from New Zealand. The disease status of New Zealand animals is very similar to that in Australia, and no quarantine risk can be seen in relaxing the restrictions imposed on the importation of these goods.

Restrictions have been placed on the importation of milk and milk products as a precaution against the entry of animal diseases into Australia. It is considered that pasteurization and drying processes which are used in the preparation of these foods cannot be relied upon to destroy all the dangerous viruses. Milk and milk products intended for use for therapeutic purposes may still be imported from any country by special permission. For other than therapeutic purposes milk, including dried or powdered milk, condensed or concentrated milk and milk albumen, cream and ice cream may in future be imported only from New Zealand, Canada and the U.S.A., and only by sea. However, any passenger will be permitted to bring in up to 2 lb. of infants' foods containing milk for each infant under two years of age who is in the passenger's charge.

A Hostel for Cancer Patients in Sydney.

The New South Wales Cancer Patients' Assistance Fund has purchased a house at Darling Point, a suburb of Sydney (see photograph), and is equipping it as a hostel. A matron and a sister have been appointed, both being



trained nurses with experience in radiotherapy nursing, and it is anticipated that accommodation will eventually be available for 20 patients at one time. Assistance for the fund by individuals or groups will be welcomed (see leading article in this issue). Those interested in helping should communicate with the honorary secretary of the committee supporting the fund, Mrs. N. J. Mackay, 509 New South Head Road, Double Bay, New South Wales.

"Australian Journal of Social Issues."

The Committee for Post-Graduate Education in Social Work (representing the New South Wales Branch of the Australian Association of Social Workers and the Department of Social Work, University of Sydney) will publish this year a new journal under the title *Australian Journal of Social Issues*. The first issue will appear in August, and thereafter there will be two issues a year. The purpose of the journal is to raise important social issues which may be of interest to students, academics, business men and politicians, as well as to social workers and administrators—in fact, issues covering the widest possible range of subjects on which social action might be taken. Within this range would fall, for example, topics on social welfare, town planning, housing administration, the organization of health services, training for the professions, etc.

The plan of the journal will be to deal with one general topic in each issue from several points of view in an attempt to highlight the practical issues involved. For the first issue, the topic chosen is "Sydney, a Unique City", and some of the subjects which will be discussed against the background of the city are: population settlement pattern; the

structure of the city's government; a statement of aims by the newly formed re-development group concerned with the present phase of urban renewal; some of the problems of standards in the social welfare field; the special nature of what some have called the "Philistine culture" of Sydney.

To provide continuity, the journal will provide in each issue an abstracting service to cover published Australian material within the same wide range of subjects. On the main topic covered by the particular issue, a special effort will be made to make the bibliography as complete as possible.

The price of the first issue will be 5s., plus postage. The annual subscription (two issues) will be £1 from 1962 onwards. Correspondence, including requests for postal delivery, should be addressed to: The Editor, Mr. T. Brennan, Director, Department of Social Work, The University of Sydney, Sydney.

Post-Graduate Work.

ROYAL PRINCE ALFRED HOSPITAL: EAR, NOSE AND THROAT DEPARTMENT.

Seminar Programme, 1961.

THE staff of the ear, nose and throat department of the Royal Prince Alfred Hospital, Sydney, will conduct a seminar on the second Saturday of every month at 8 a.m. in the Scot Skirving Lecture Theatre. The main speaker will not exceed forty minutes, and there will be a discussion at the conclusion of his remarks. All medical practitioners and clinical students are invited to attend.

At the next seminar, to be held on August 12, Dr. B. B. Sheaves will speak on "Eighth Nerve Tumours".

University Intelligence.

THE UNIVERSITY OF NEW SOUTH WALES.

Further Appointment to the Medical Faculty.

THE Vice-Chancellor of the University of New South Wales, Professor J. P. Baxter, has announced the following appointment to the Faculty of the new Medical School.

Mr. G. D. Tracy, F.R.C.S., F.R.A.C.S., has been appointed Associate Professor of Surgery. At present he holds the positions of honorary assistant surgeon, Royal North Shore Hospital of Sydney, part-time lecturer in clinical surgery, University of Sydney, and honorary assistant surgeon, Lewisham Hospital. He qualified in medicine at the University of Sydney, and later undertook a full-time post-graduate course in advanced surgery at St. Thomas's Hospital Medical School, London. He held appointments as junior lecturer in surgery at the University of London, and clinical research assistant with the Surgical Professorial Unit, St. Thomas's Hospital, London. In 1956 and 1957 Mr. Tracy was the Crile, Bunts and Lower Research Fellow in Surgery at the Western Reserve School of Medicine, Cleveland, Ohio. Associate Professor Tracy has published papers on various aspects of vascular disease, infection of operating theatre air, and sympathectomy. Within the field of general surgery, his special interest is in the direct surgery of arterial disease.

UNIVERSITY OF AUCKLAND.

THE dissolution of the University of New Zealand is proceeding and will be complete by December 31, 1961, shortly after its final dinner and honorary-degree-conferring ceremony. It has already made over its examining powers to the four general university institutions (Otago, Canterbury, Victoria in Wellington, and Auckland), which are now titled universities, not colleges as previously. Their senior officers are called chancellor, vice-chancellor and pro-chancellor, instead of chairman or president, principal and vice-chancellor or the like, as formerly. Coordinating and financial functions have been made over to a new University Grants Committee under the chairmanship of Dr. F. J. Llewellyn.

The University of Auckland, which is expected to assume its full degree-conferring and other powers by the new Act to come into force on January 1, 1962, has elected as Chancellor Sir Douglas Robb, C.M.G., in succession to W. H. Cocker, Esq., C.M.G., who has retired. The new Pro-Chancellor is W. H. Cooper, Esq., M.A., Headmaster of the Auckland Grammar School. The University is faced with rapidly increasing numbers and has a heavy programme of building to achieve. It is particularly deficient in halls of residence, though the Presbyterian Church has recently indicated its intention to provide one. The undergraduate roll is between 4500 and 5000, a considerable number being part-time students. Auckland has been designated as the seat for the second medical school, thought by many to be urgently needed if the hospital staffs are to be maintained. As yet the Government has not authorized the launching of this school. The University has recently constituted a Faculty of Medicine, to coordinate existing functions (Post-Graduate Department of Obstetrics and Gynæcology, a substantial Post-Graduate Medical Committee, certain research activities, etc.) and to prepare the way for the undergraduate school. Medical education has been under study by a steering committee for over two years. The Auckland Medical Research Foundation, set up in 1957, is building up its strength and will be of great assistance.

World Medical Association.

Fifteenth General Assembly.

THE fifteenth General Assembly of The World Medical Association will convene at the Copacabana Palace Hotel, Rio de Janeiro, Brazil, on September 15 to 20, 1961. Immediately preceding the Assembly, from September 11 to 14, the Brazil Medical Association will hold a symposium on Arbor virus. General topics to be discussed will include definition, nomenclature, classification, antigens and antibodies, tissue culture, clinical and laboratory diagnosis, epidemiology and prophylaxis. Conclusions of this symposium will be presented in the scientific session of the General Assembly on Saturday, September 16, 1961.

The annual conference of medical editors will consider "Problems Related to Medical Publications in Latin America".

As a special feature, the Instituto Britantan will provide demonstrations of the techniques of extracting venom from snakes.

Special topics on the programme of the General Assembly will include consideration of increased cost of medical care under social security schemes, draft code of human experimentation and world problems of medical education.

Secretary-General.

On July 3, 1961, Dr. Harry S. Gear, of Johannesburg, South Africa, succeeded Dr. Louis H. Bauer, of New York, as Secretary-General of The World Medical Association.

Naval, Military and Air Force.

APPOINTMENTS.

THE following appointments, changes, etc., are published in the *Commonwealth of Australia Gazette*, No. 56, of July 6, 1961.

NAVAL FORCES OF THE COMMONWEALTH.

Citizen Naval Forces of the Commonwealth.

Royal Australian Naval Reserve.

Termination of Appointment.—The appointment of John Coleman as Surgeon Lieutenant-Commander is terminated, dated 20th April, 1961.

AUSTRALIAN MILITARY FORCES.

Australian Regular Army.

Royal Australian Army Medical Corps (Medical).—To be Major-General, 6th April, 1961—312033 Brigadier (Temporary Major-General) A. J. Clyne, C.B.E.

Citizen Military Forces.

Northern Command.

Royal Australian Army Medical Corps (Medical).—The provisional appointment of 139262 Captain D. D. McGuckin is terminated, 20th April, 1961.

Eastern Command.

Royal Australian Army Medical Corps (Medical).—279316 Captain F. H. Lang ceases to be seconded in the United Kingdom, 5th May, 1961. 2115677 Major M. T. Havyatt is appointed from the Reserve of Officers and is borne supernumerary to the authorized establishment of Majors with pay and allowances of Captain (at own request), 5th May, 1961. 250434 Captain R. J. M. Dunlop is transferred to the Reserve of Officers (Royal Australian Army Medical Corps (Medical)) (Eastern Command), 28th April, 1961. The provisional appointments of the following officers are terminated as shown:—Captains 2104504 E. G. Bosch, 3rd September, 1960, 2116143 I. R. Vanderfield, 13th October, 1960, 2108344 G. J. Dalgarno, 11th December, 1960, 2127076 B. R. C. Daniel, 16th March, 1961, and 2221810, R. A. Shapiro, 17th March, 1961. *To be Captains (provisionally)*—2104504 Edward Graham Bosch, 4th September, 1960, 2116143 Ian Roger Vanderfield, 14th October, 1960, 2108344 Geoffrey James Dalgarno, 12th December, 1960, 2127076 Bruce Ramsay Crofton Daniel, 17th March, 1961, and 2221810 Ralph Abraham Shapiro, 18th March, 1961.

Royal Australian Army Medical Corps (Medical).—The provisional appointment of 2111138 Captain S. N. Protopopoff is terminated, 9th June, 1960. *To be Captain (provisionally), 10th June, 1960*—2111138 Serge Nicholas Protopopoff. The provisional appointment of 2111138 Captain S. N. Protopopoff is terminated, 2nd July, 1960.

Southern Command.

Royal Australian Army Medical Corps (Medical).—The provisional rank of F31036 Captain D. B. Newton is confirmed.

Reserve Citizen Military Forces.

Northern Command.

Royal Australian Army Medical Corps (Medical).—To be Honorary Captain, 21st April, 1961.—Desmond David McGuckin.

The following officer is placed upon the Retired List (Northern Command) and granted a military title equivalent to the substantive or honorary rank shown, with permission to wear the prescribed uniform, 30th June, 1961:—*Royal Australian Army Medical Corps (Medical).*—Lieutenant-Colonel E. A. F. McDonald.

Eastern Command.

The following officer is placed upon the Retired List (Eastern Command) and granted a military title equivalent to the substantive or honorary rank shown, with permission to wear the prescribed uniform, 30th June, 1961:—*Royal Australian Army Medical Corps (Medical).*—Captain R. H. Kennedy.

ROYAL AUSTRALIAN AIR FORCE.

Permanent Air Force.

Medical Branch.

Each of the following is appointed to a temporary commission with the rank of Pilot Officer (student):—Charles Barnett Edgar Davis (054335), Haydn Dyer (055763), 1st January, 1961; Michael d'Arcy Stanton-Hicks (042504), 31st January, 1961; Rein Uksi (017033), 1st February, 1961; Colin Kibel (0315309), 22nd March, 1961.

Active Citizen Air Force.

Medical Branch.

No. 22 (City of Sydney) (Auxiliary) Squadron.—Marc Roger Playoust (0211910) is appointed to a commission, 1st April, 1961, with the rank of Flight Lieutenant.

No. 23 (City of Brisbane) (Auxiliary) Squadron.—Flight Lieutenant G. F. Holmes (016516) is transferred from the Reserve, 5th April, 1961.

Air Force Reserve.

Medical Branch.

Roderick Peter Chandler (268133) is appointed to a commission, 1st February, 1961, with the rank of Wing Commander.

Australian Medical Board Proceedings.

NEW SOUTH WALES.

THE following additions and amendments have been made to the Register of Medical Practitioners for New South Wales, in accordance with the provisions of the *Medical Practitioners Act*, 1938 (as amended).

DISEASES NOTIFIED IN EACH STATE AND TERRITORY OF AUSTRALIA FOR THE WEEK ENDED JULY 8, 1961.[1]

Disease.	New South Wales.	Victoria.	Queensland.	South Australia.	Western Australia.	Tasmania.	Northern Territory.	Australian Capital Territory.	Australia.
Acute Rheumatism	1	3(3)	1	..	..	1	1	..	7
Amœbiasis	..	..	..	..	..	..	..	..	..
Ancylostomiasis	2	..	..	..	..	..	3	..	5
Anthrax	..	..	..	..	..	..	..	..	..
Bilharziasis	..	..	..	..	..	..	..	..	..
Brucellosis	..	..	..	..	..	..	..	..	..
Cholera	..	..	..	..	..	..	..	..	..
Chorea (St. Vitus)	..	..	..	..	..	..	..	..	..
Dengue	..	..	..	..	..	..	..	..	..
Diarrhœa (Infantile)	1	8(8)	3(3)	..	..	1(1)	1	..	14
Diphtheria	..	..	..	..	..	..	..	..	..
Dysentery (Bacillary)	..	..	..	3(3)	1(1)	..	1	..	5
Encephalitis	..	..	..	..	..	..	..	..	..
Filariasis	..	..	..	..	..	..	..	..	..
Homologous Serum Jaundice	..	..	..	..	..	..	..	..	..
Hydatid	..	..	..	..	..	..	..	..	..
Infective Hepatitis	111(44)	66(35)	34(9)	22(12)	1	3(1)	1	6	244
Lead Poisoning	..	..	1	..	..	..	..	..	1
Leprosy	..	..	..	..	..	..	..	..	..
Leptospirosis	..	..	2	..	1(1)	..	..	..	3
Malaria	..	..	1	..	..	..	..	..	1
Meningococcal Infection	..	2(2)	..	..	..	..	..	..	2
Ophthalmia	..	..	..	..	..	..	..	..	..
Ornithosis	..	..	..	..	..	..	..	..	..
Paratyphoid	..	..	..	..	..	..	..	..	..
Plague	..	..	..	..	..	..	..	..	..
Poliomyelitis	2	1	..	2(2)	..	..	..	..	5
Puerperal Fever	1	..	..	..	..	..	..	..	1
Rubella	..	17(10)	..	3(1)	..	..	..	..	20
Salmonella Infection	..	..	..	..	..	..	..	..	..
Scarlet Fever	10(5)	14(8)	5(5)	3(3)	2(2)	3	..	..	37
Smallpox	..	..	..	..	..	..	..	..	..
Tetanus	..	..	1	..	..	..	..	..	1
Trachoma	..	..	..	..	..	..	..	..	..
Trichinosis	..	..	..	..	..	..	..	..	..
Tuberculosis	28(16)	13(10)	4	1	3(3)	4(1)	..	..	53
Typhoid Fever	..	..	..	..	..	..	..	..	..
Typhus (Flea-, Mite- and Tick-borne)	..	..	1	..	..	..	..	..	1
Typhus (Louse-borne)	..	..	..	..	..	..	..	..	..
Yellow Fever	..	..	..	..	..	..	..	..	..

Figures in parentheses are those for the metropolitan area.

Registered medical practitioners who have complied with the requirements of Section 17 (3) and are registered under Section 17 (1) (*a*) of the Act, qualifications being M.B., B.S., 1961 (Univ. Sydney) unless otherwise stated: Anderson, Malcolm Miller; Bowmaker, Ian Bruce; Bradfield, Elizabeth Sheila Geraldine; Brown, Grahame Fraser; Cheok, Francis Poh Gwan; Chew, Chin Han; Chu, Peter Ka Chun; Colless, John Jackson; Evans, David Joseph; Harper, Hamilton Ian; Hughes, Lloyd Alan James; Johnson, Howard Ronald; Khoo, Sian Bin; Kaines, Antony Hannay; Layton, Rellu; Llewellyn, Margaret Isobel; McCarron, Anthony Edwin; Ng, Eng Lim; Phoon, David Wai Kwok; Reichard, Otto; Rost, Frederick William Dickes; Sahu Khan, Mohammed Ali; Salega-Starzecki, Boguslaw; Souw, Raymond Stephen Maynard; Tay, Peter Alphonsus Yew Hean; Thomson, Anthony Carl; Tjiong, George Tat Loek; Wee, Kang Cheng.

Registered medical practitioners who have complied with the requirements of Section 17 (3) and are registered under Section 17 (1) (*b*) of the Act: Batholomeusz, Juvenal Henry Maurice, M.B., B.S., 1949 (Univ. Ceylon); Bellon, Ben, M.B., Ch.B., 1936 (Univ. Cape Town), F.R.C.S. (Edinburgh), 1947; D.L.O., R.C.P. & S. (England), 1948; Davimes, Maurice, M.B., B.Ch., 1944 (Univ. Witwatersrand); Earle, Frances Margaret, M.B., Ch.B., 1940 (Univ. Edinburgh), M.D., 1950 (Univ. Edinburgh), D.C.H., R.C.P. & S. (England), 1946, D.P.H. (Birmingham), 1947; Frank, Harold Hyman, M.R.C.S. (England), L.R.C.P. (London), 1946; Glauber, Dennis Teddy, M.B., B.Ch., 1949 (Univ. Witwatersrand), D.A. (Witwatersrand), 1959; Gonski, Alexander, M.B., B.Ch., 1943 (Univ. Witwatersrand), F.R.C.S. (Edinburgh), 1948, B.Sc., 1940 (Univ. Witwatersrand); Sidley, Arnold, M.B., B.Ch., 1931 (Univ. Witwatersrand), D.P.M. (Univ. Witwatersrand), 1950; Segal, Herbert George Emanuel, M.B., Ch.B., 1936 (Univ. Witwatersrand).

The following have been issued with a licence under Section 21A of the Act: Meyer, Adam Jan, for one year from June 28, 1961; Kisonas, Vytautas, for one year from August 1, 1961.

The following have been issued with a licence under Section 21C (4) of the Act: Skowronska, Valerija, for one year from June 29, 1961; Hornitzky, Jaroslav, for one year from June 25, 1961; Kowalski, Ignacy, for one year from July 5, 1961; Peukert, Joseph, from July 3, 1961, to October 20, 1961.

The following have been issued with a licence under Section 21C (3) of the Act: Zylkiewicz, Jozef, for one year from June 6, 1961; Ballin, Annie, for one year from June 15, 1961; Nussbaum, Natan, for one year from July 17, 1961.

Medical Practice.

POLICE OFFENCES (AMENDMENT) ACT, 1908, AS AMENDED.

THE following notice appeared in *The Government Gazette of the State of New South Wales*, Number 73, of July 14, 1961.

POLICE OFFENCES (AMENDMENT) ACT, 1908, AS AMENDED.

Withdrawal of Authority to be in Possession of Drugs.

It is hereby notified for general information that under the provisions of Regulation No. 25 of the Police Offences (Amendment) Act, 1908, as amended, the authority of Dr. Reginald Ralph Pilkington to be in possession of drugs to which the Act applies for the purpose of his profession and to issue prescriptions for such drugs is withdrawn as on and from Monday, 31st July, 1961.

(6357) C. A. KELLY.

Chief Secretary's Department, Sydney, 14th July, 1961.

Nominations and Elections.

THE undermentioned has applied for election as a member of the New South Wales Branch of the British Medical Association:

O'Neill, Barry James, M.B., B.S., 1956 (Univ. Sydney), Fairfax Institute of Pathology, Royal Prince Alfred Hospital, Missenden Road, Camperdown.

Deaths.

THE following deaths have been announced:

LAWTON.—Frederick Donald Herbert Blois Lawton, on July 16, 1961, at Melbourne.

HOBSON.—Arthur Francis Hobson, on July 21, 1961, at Rose Bay, New South Wales.

Diary for the Month.

AUGUST 8.—New South Wales Branch, B.M.A.: Executive and Finance Committee.
AUGUST 10.—New South Wales Branch, B.M.A.: Public Relations Committee.
AUGUST 11.—Queensland Branch, B.M.A.: Council Meeting.
AUGUST 14.—Victorian Branch, B.M.A.: Finance Sub-Committee.
AUGUST 15.—New South Wales Branch, B.M.A.: Medical Politics Committee.

Medical Appointments: Important Notice.

MEDICAL PRACTITIONERS are requested not to apply for any appointment mentioned below without having first communicated with the Honorary Secretary of the Branch concerned, or with the Medical Secretary of the British Medical Association, Tavistock Square, London, W.C.1.

New South Wales Branch **(Medical Secretary, 135 Macquarie Street, Sydney): Medical Officers to Sydney City Council. All contract practice appointments in New South Wales. Members are requested to consult the Medical Secretary before undertaking practice in dwellings owned by the Housing Commission.**

South Australian Branch **(Honorary Secretary, 80 Brougham Place, North Adelaide): All contract practice appointments in South Australia.**

Editorial Notices.

ALL articles submitted for publication in this Journal should be typed with double or treble spacing. Carbon copies should not be sent. Authors are requested to avoid the use of abbreviations, other than those normally used by the Journal, and not to underline either words or phrases.

Authors of papers are asked to state for inclusion in the title their principal qualifications as well as their relevant appointment and/or the unit, hospital or department from which the paper comes.

References to articles and books should be carefully checked. In a reference to an article in a journal the following information should be given: surname of author, initials of author, year, full title of article, name of journal, volume, number of first page of article. In a reference to a book the following information should be given: surname of author, initials of author, year of publication, full title of book, publisher, place of publication, page number (where relevant). The abbreviations used for the titles of journals are those of the list known as "World Medical Periodicals" (published by the World Medical Association). If a reference is made to an abstract of a paper, the name of the original journal, together with that of the journal in which the abstract has appeared, should be given with full data in each instance.

Authors submitting illustrations are asked, if possible, to provide the originals (not photographic copies) of line drawings, graphs and diagrams, and prints from the original negatives of photomicrographs. Authors who are not accustomed to preparing drawings or photographic prints for reproduction are invited to seek the advice of the Editor.

Original articles forwarded for publication are understood to be offered to THE MEDICAL JOURNAL OF AUSTRALIA alone, unless the contrary is stated.

All communications should be addressed to the Editor, THE MEDICAL JOURNAL OF AUSTRALIA, The Printing House, Seamer Street, Glebe, New South Wales. (Telephones: 68-2651-2-3.)

Members and subscribers are requested to notify the Manager, THE MEDICAL JOURNAL OF AUSTRALIA, Seamer Street, Glebe, New South Wales, without delay, of any irregularity in the delivery of this Journal. The management cannot accept any responsibility or recognize any claim arising out of non-receipt of journals unless such notification is received within one month.

SUBSCRIPTION RATES.—Medical students and others not receiving THE MEDICAL JOURNAL OF AUSTRALIA in virtue of membership of the Branches of the British Medical Association in Australia can become subscribers to the Journal by applying to the Manager or through the usual agents and booksellers. Subscriptions can commence at the beginning of any quarter and are renewable on December 31. The rate is £6 *per annum* within Australia and the British Commonwealth of Nations, and £7 10s. *per annum* within America and foreign countries, payable in advance.